



FRIDAY, DECEMBER 7, 1900.

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Contributions

Classifying Locomotives.

November 3, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

The arbitrary and incomprehensible methods of classifying locomotives on different railroads has perhaps not impressed itself upon you. In the interest of a uniform method of classifying locomotives I suggest the one shown on the sketch. With this as a basis such prefix or affix letters could be added showing cylinder dimensions, style of fire-box, or kind of fuel, etc., as may be necessary. You will see that the class number suggests the number of wheels and the arrangement is as of a locomotive headed West, as that is the course of Empire.

ROADMASTER.

New York's Inadequate Grade Crossing Law.

Troy, N. Y., Nov. 26, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

The elimination of grade crossings in this city has recently been seriously considered. During the consideration of this question my attention has been particularly directed to the meager expenditure permitted the Board of Railroad Commissioners of the state for the purpose of eliminating the crossings of railroad tracks at grade. As is well known, under the grade crossing law when the Board of Railroad Commissioners have, in the manner prescribed by law, determined that a grade crossing shall be eliminated the expense of such change is borne jointly by the railroad, the town or city and the state; one-half by the railroad, one-quarter by the town or city, and one-quarter by the state. The Board of Railroad Commissioners may expend each year \$100,000 for the share of the state. This must necessarily be distributed in different parts of the state. The law debars the Commissioners from making appropriations in any year greater than this hundred thousand dollars, and they are not permitted to make an agreement to expend a certain yearly amount for a number of years in order to effect the elimination of a grade crossing. Under these circumstances only simple eliminations can be effected and it is not surprising to find that out of the 8,000 crossings in the state only about 100 have been done away with under this law. At this rate hundreds of years must elapse before all the crossings at grade will have disappeared. Many pressing cases cannot be touched for years. The amount allowed the Commissioners is wholly inadequate. They should be permitted to expend, for a certain number of years at least \$300,000 a year as the share of the state. In Massachusetts an act of the legislature passed in 1890 appropriated five millions of dollars to be expended at the rate of \$500,000 a year. Not much was

expended during the first three years and the law was changed so that an unexpended balance of one year could be added to the appropriation of the next. The largest expenditure in any one year was made in 1896, when about \$875,000 was expended. The total amount expended by the state under the act of 1890 has been \$2,480,000, and under special acts \$1,850,000. Under the act of 1890 the state of Massachusetts pays 25 per cent., the city or town 10 per cent., and the railroad company 65 per cent. of the cost of the elimination. As the number of grade crossings in Massachusetts is only about 25 per cent. of the number in New York the statistics given above show that we are far behind that state in making provision for the elimination of such crossings. I believe that when this matter is thoroughly understood a much greater annual expenditure for the elimination of grade crossings will be allowed the Board of Railroad Commissioners and that \$300,000 a year will not be considered to be an unreasonable amount.

PALMER C. RICKETTS.

Lighting the Track.

Chicago, Dec. 3, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

Referring to the article entitled "Eyes and Headlight," in your Oct. 12th issue, and to the contribution signed "T. A." in the Nov. 23d number, personal observation on many trips behind the electric headlight confirms the correctness of every point made by the writer of the former, especially as regards its effect on switch and semaphore lights. I would call his attention to one advantage conferred by this headlight which may not have impressed itself as strongly upon his mind as it has on my own, viz., the fact that all signals, classed as position signals during daylight, are by the electric headlight made position signals at night, and this without in any way interfering with the usual color indication. It is true that under the present custom of painting semaphores a dark red on the side of approach, even the powerful electric light does not render their position apparent at a great distance; but as a matter of fact, all that is needed to render such a signal efficient as a night position indicator, is to paint it white, or partly so, on the "near side." The writer's experience has shown that a white semaphore arm can be plainly seen in the shaft of an electric headlight, ten times as far as a red one, and at ample distance in which to stop from high speed. Your correspondent "T. A." seems to fully comprehend some of the important features of the electric headlight as a safety appliance, but in speaking as he does of the desirability of mounting it searchlight fashion, and in advancing the opinion that its tangential shaft on curves, in a hilly country, is of "little assistance," he completely overlooks the excellent statement in the last paragraph of "Eyes and Headlights" of its utility under such conditions. The points on any road at which the power to throw the shaft from side to side would be really useful, or availed of, are few in number, and it must be further borne in mind that whenever the rays are thus deflected, the track immediately in front of the advancing engine is in darkness for the time. Just how "T. A." would throw the light shaft "around a corner" is not apparent unless he proposes to erect a series of mirrors alongside the track, set at proper angles.

His schemes for illuminating the track are equally impracticable. Aside from the element of cost, prohibitive in itself, he ignores the highly important feature of the announcement, by the electric headlight of a train's approach. At many points on roads using this light, trains are thus nightly heralded, and at a distance varying from five to fifteen miles, be the road crooked or straight, and the country mountainous or flat.

VERITAS.

The Mallet Locomotive.

Paris, Nov. 15, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

I send you my best thanks for your courtesy in the correction in your issue of Nov. 2. I must again trouble you about certain misstatements with respect to my engines in Mr. Ch. Rous-Marten's paper in the same issue on "The Locomotive Exhibit at Paris."

The "gigantic twelve-wheeled Russian engine" is not a modification of the Mallet system, but is entirely built after that system. In fact, it is similar in every respect, except the separate tender to the Gothard engine described in the *Railroad Gazette* of Aug. 15, 1890, p. 568; Feb. 6, 1891, p. 92, etc.

Concerning the same engine the statement "while each group is driven by one h.p. cylinder and one l.p. cylinder" is a very serious mistake. Every one acquainted with my engine knows that it is characterized by a forward steam truck driven by a pair of l.p. cylinders receiving the exhaust steam of a pair of h. p. cylinders fitted on the rear and fixed part of the engine. This arrangement (which has nothing to do with the Fairlie system built according to an entirely different principle) has been adopted in order to do away with any high-pressure hinged pipe joint.

The Russian engine weighs, in working order, about 82 metric tons, the maximum allowed weight per axle being 14 tons; weight of engine and tender full 128 tons.

In the *Engineering Magazine's* article, from which your extracts are taken, Mr. Rous-Marten says: "How it

works in actual regular practice, I have not as yet had any opportunity of ascertaining." I am glad to let him know that this locomotive is by no means an experiment. The railroad which has sent it to the Exhibition owns 20 similar engines, and has just ordered 25 more. Many others can be found on Russian roads of broad and narrow gages.

I have some doubt if Mr. Rous-Marten noticed all the interesting engines at Vincennes, but he seems to have seen locomotives which were never there, as for instance "a standard express compound engine on the De Glehn system exhibited by the State Railroad of France, together with the Vaucrain engine." The former is merely a non-compound two-cylinder engine with piston valves of the State Railroad type built at Creusot.

I do not entirely agree with Mr. Rous-Marten in respect to the number of exhibited compound engines, although the discrepancy is very slight. I think it well to enclose a table of the compounds, classified in respect to the

Compound Locomotives at Vincennes.

| | 2 Cyl. | 3 Cyl. | 4 Cyl. | Total. |
|---------------|--------|--------|--------|--------|
| German | 6 | .. | 4 | 10 |
| British | .. | .. | 1 | 1 |
| Austrian | 4 | .. | .. | 4 |
| Hungarian | 1 | .. | 1 | 2 |
| Belgian | .. | .. | .. | .. |
| Italian | 1 | .. | 1 | 2 |
| Russian | 2 | .. | 2 | 4 |
| Swiss | 1 | 1 | 1 | 3 |
| Total foreign | 15 | 1 | 10 | 26 |
| French | 2 | .. | 8 | 10 |
| Grand total | 17 | 1 | 18 | 36 |

countries and to the number of cylinders. The statement that the four-cylinder compound engine on the De Glehn system has more representatives than any other in the Exhibition of 1900 does not agree with the figures, as there are at Vincennes only nine locomotives of that type, seven in the French, one in the German and one in the Swiss sections, against 17 locomotives of the two-cylinder compound type, as it was introduced by me at the Paris Exhibition of 1878. The above statement is true only if we consider the four-cylinder locomotives, as shown in the following table:

| | |
|---|----|
| 4 cylinders with 2 coupled driving axles (de Glehn). | 9 |
| 4 cylinders with uncoupled driving axles (Mallet). | 3 |
| 4 cylinders on the same driving axle. | 3 |
| 4 cylinder tandem | 1 |
| 4 cylinder Vaucrain | 1 |
| 4 cylinder in two separate driving gears (rack and adhesion). | 1 |
| Total. | 18 |

A. MALLET.

Load Carried by Norfolk & Western 50-Ton Cars.

Norfolk & Western Railway Co.,
Roanoke, Va., Nov. 27, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

My attention has been called to a statement on page 703 of your issue of Oct. 26, 1900, to which I wish to take exception.

In the table of comparative data of weights and capacities of different types of hopper bottom cars, the composite car of the Norfolk & Western is compared with that of other builders in a manner that would make it appear that we had tried to make a car of 100,000 lbs. capacity but had failed. As a matter of fact, our 50-ton cars, of which we have 1,000 in service, are carrying over 100,000 lbs., as is shown by the following weights, taken at random from our reports of the lading of trains on Nov. 22 at a weighing point some distance from the mines where the cars are loaded:

| N. & W. | Weight | 106,600 lbs. net |
|---------|---------|------------------|
| 50,430 | 106,600 | " |
| 50,886 | 101,100 | " |
| 50,421 | 106,400 | " |
| 50,627 | 107,200 | " |
| 50,488 | 100,100 | " |
| 50,629 | 107,800 | " |
| 50,687 | 106,400 | " |
| 50,978 | 99,500 | " |
| 50,695 | 99,400 | " |
| 50,132 | 100,000 | " |
| 50,009 | 100,200 | " |
| 50,072 | 105,800 | " |
| 50,346 | 100,200 | " |
| 50,843 | 107,800 | " |
| 50,911 | 104,800 | " |
| 50,820 | 107,000 | " |
| 50,531 | 99,300 | " |
| 50,094 | 100,400 | " |
| 50,078 | 105,900 | " |
| 50,391 | 105,700 | " |

Total ... 20 2,078,200

An average per car of 103,910 lbs.

These weights are actual service loads, not what can be possibly heaped on the cars, and occasionally cars are reported carrying up to 109,200 lbs.

The error in estimating the Norfolk & Western car has been mainly in taking the weight of coal at 52 lbs. per cu. ft. While the amount varies with the proportion of slack, it would seem from a number of calculations that the weight of most of the coal passing over this line is from 55 to 58 lbs. per cu. ft. The average lading of the above-mentioned cars divided by the cubical capacity shown in the table gives the weight per cu. ft. of 55.5 lbs. The article compliments us with a lower marked capacity than we can honestly claim. These cars average in light weight 39,600 lbs. and at their maximum service lading of 109,000 lbs., carry a ratio of dead weight to paying load of 36.3 per cent., or for the 20 cars above mentioned, 38 per cent. To put these amounts in other terms, our cars have carried 73.3 per cent. revenue load and for the 20 cars mentioned, the revenue load was 72.4 per cent.

W. H. LEWIS, Superintendent Motive Power.

[In our issue of Nov. 30, p. 791, the reader will see

a description of a new Norfolk & Western hopper bottom car, still lighter than the one referred to by Mr. Lewis above, and having the same load capacity.—Editor.]

Standard Draft-Gear and Couplers.

For articles and communications on this subject the reader may see the *Railroad Gazette*, Nov. 16, pp. 749 and 756; Nov. 30, p. 794. Extracts from later letters follow:

I am extremely busy and will be unable to go into the matter carefully. If a standard coupler and draft gear should be adopted and adhered to, it certainly would be advantageous to railroad companies, unless such action would put up the price. I am a member of the M. C. B. Association Committee on draft gear and will be very much interested in reading your discussion on the subject.

I think the time has about arrived for some such test as proposed by Mr. Westinghouse with view to determining what is the strongest and best draft gear to meet the demands of the heavy service of the present day. While perhaps it would take some time to work into a common standard in this respect, the information obtained from such test would be of great service to the railroad mechanical world. I think it would be conceded by all mechanical people that the large number of different couplers and draft gears now in use on American railroads is a source of considerable trouble and annoyance to people who have to do with the repairs to railroad stock, as well as expense to the railroad companies.

I have gone over carefully with our Superintendent of Motive Power and Equipment the various questions touched upon. I think that the position outlined by the article is absolutely along the right lines. The initiative must be taken by the management of the railroads. If such action was taken, and an agreement arranged to enforce standard draft attachments, it would be a good thing and I believe could be conformed to in most cases without much difficulty. The expense, however, would not be inconsiderable, as the mere drawbar or coupler is not the only thing to be considered in any change of this kind. We must have the spring resistance equal to at least double our present springs in any improved apparatus which almost exhausts the double spring gear at the outset; therefore the indications certainly point toward a friction arrangement of some type. Improvement on this line has for a long time been most apparent and is becoming more so each year.

I am not in a position to say that 70 per cent. of repair to freight cars is due to defective draft gears. It certainly is a very large percentage of our cost to maintain the freight equipment, but to say that the Westinghouse friction draft gear would lessen this expense without remodeling the freight equipment would be an injustice to the other meritorious devices now in use with the modern freight equipment. I should say that not less than 10 per cent. of our expense in the matter of draft rigging is due to what might be properly termed draft rigging, and that the other 60 per cent. forming the 70 per cent. (that being a fair average) is properly due to inadequate support of draw arrangements as secured to the body of car. My experience with our own and foreign equipment convinces me fully that there are several devices in use that stand up under the most severe strain, and are able to tear down any draw arrangement or draft timbers as applied to our wooden cars. I fully believe that one-half the expense of our draft rigging is due to the large number of cars being interchanged without dead woods, and that a large percentage of damage to draft rigging is due to buffing and not pulling strains. In my opinion the proper place to receive the shocks of yard switching is on a line with the body frame and not 8 or 10 in. below it as is the case without dead woods.

I do not agree with either the position of Mr. Westinghouse or the *Railroad Gazette*. I trust that I am broad enough not to be influenced by the suggestion of Mr. Westinghouse that such matters should be taken out of the hands of the mechanical department. [We know that Mr. Westinghouse did not intend to suggest that "such matters should be taken out of the hands of the mechanical department." He would expect that as a matter of course the managements would work through their mechanical officers.—Editor.] I realize fully that this particular question should not be considered from a mechanical standpoint alone, but from the standpoint of railroad operation and interchange, and I feel that the mechanical departments of railroads should often put aside their personality for the purpose of meeting a condition in a comprehensive way, and not with regard entirely to the particular interests of the mechanical department.

Taking the question on its merit, it does not seem to me that it would be wise for the railroads of the United States to adopt one device only for so important a purpose. The question might be asked, whether in any business or development one thing should, or ever does, hold the field alone; the idea seems to me to be fundamentally wrong. Would it be possible for the higher officers of railroads to get together and say that such and such a coupler or such and such a draft gear was the most satisfactory and should be generally used? Is it within the capacity of any set of men to point out at

this time what it is best to use as a draft gear or coupler?

If we should all commence and equip with any one gear, and continue it for five years, there is not the slightest doubt but that we would find, as we always do find in everything, that it would have to be changed or modified to correct some defect or meet some unknown condition. It would then be suggested that we use the single standard in an improved form—we would all commence and apply this and in five years more we would have two kinds of draft gear, and at the end of that time still another development would be made, and we would go on repeating this until the original design would be unrecognizable, just as we have had many modifications of the air-brake and automatic coupler. During this time the ingenuity and effort of many minds would be entirely cut off from operation in the direction of development. I cannot conceive the railroads of the United States taking such a position.

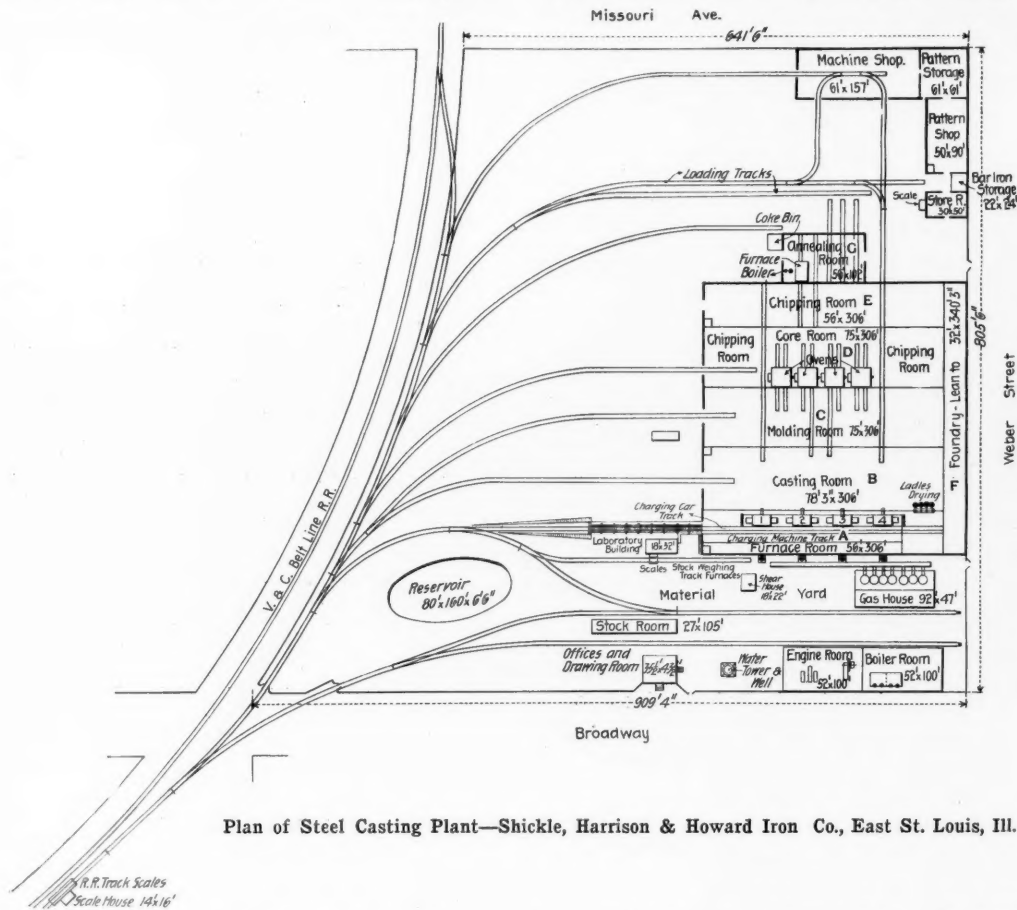
Coming down to the question of what may be done, I have no doubt that something may be accomplished in the direction suggested by Mr. Westinghouse. Prior to the adoption of the vertical plane coupler there was a great difference of opinion in the Master Car Builders' Association as a result of the proposition to adopt some particular coupler. This was shown to be neither a practicable nor desirable thing to do. The result was that it was decided to adopt a principle, namely the vertical plane type with standard contour lines, so that all couplers would be interchangeable. Can anyone say that this has not been satisfactory in general? What we can do in the matter of draft gear is to adopt certain fundamental principles. The M. C. B. Association has a committee appointed with the view of making a report at the next convention, and may properly take up this phase of the question. It is to be hoped that they will render some good service. If they do not I have no doubt that a succeeding committee will. By thus following a certain principle, and at the same time adopting some

New Steel Castings Plant of the Shickle, Harrison & Howard Iron Company.

The large business being done in cast steel parts for car construction is indicated by the magnificent new plant of Messrs. Shickle, Harrison & Howard, in East St. Louis, Ill. The great simplicity in construction, the possibility of placing metal just where it is needed, the absence of rivets, the absence of corrosion and the uniformity of the metal have all been favorable to the introduction of cast steel. In the Middle West and Southwest cast steel is now generally used for such parts as bolsters and trucks, in preference to other forms of construction.

In June last the new open-hearth steel castings plant in East St. Louis was put in operation and eventually the old plant on the opposite side of the river, in St. Louis, will be closed. The new plant occupies about 17 acres of land, and when worked to full capacity will employ 1,000 men, and turn out 100 tons of finished castings a day. One visiting it for the first time is at once impressed by the large size and substantial character of the buildings and the liberal scale on which everything is designed. Much attention has been given to the general scheme by which raw materials are brought in at one side of the main building and are passed from point to point until finally the finished product comes out on the opposite side ready for loading. Modern methods for handling material are to be seen on all sides. The large size of this plant is due to the intention of making a special line of work. A specialty will be made of cast steel car bolsters of various designs; the "Player" diamond frame truck which has cast steel bolsters and transoms, the "Ajax" all cast steel pedestal truck, and locomotive driving wheel centers and similar large castings used by railroads. For this class of castings the open-hearth process is considered the best adapted.

The general plan of the buildings is shown by the engravings. The frame work of the larger buildings is



Plan of Steel Casting Plant—Shickle, Harrison & Howard Iron Co., East St. Louis, Ill.

specific details, the wide variation in practices can be very materially reduced.

It may be argued that there is nothing in the M. C. B. standards to compel uniformity; this is no doubt the case, yet it is remarkable to what extent certain M. C. B. adopted principles have been used by the railroads, and the only wonder is that more standards in the form of principles have not been adopted. The fact of the matter is that whenever the M. C. B. Association has, through its committees, made careful investigations and satisfactory recommendations, and after thorough discussion has adopted standards that appeal to the unbiased opinion of the great majority as being good, they have been promptly taken up by the railroads and used. The fact is, too, that the influence of the Association has by no means been used to its utmost. By the adoption of a code of rules it has wonderfully facilitated the interchange of cars. During the last two years but few modifications, and no important ones, have been made in these rules, and it may seem that the Association has no further important mission to perform. I see no reason why the Association cannot turn its attention to the adoption of principles and some standard specific details, and modify the rules as to make the use of the principles advantageous to railroad companies and disadvantageous to those who, through some narrow or selfish motive, see fit to hold aloof.

steel covered with corrugated iron, and the smaller buildings are brick. The main building, 340 ft. x 340 ft., is made up of five bays. There are switching tracks on two sides and three spur tracks run into the larger bays. These yard tracks connect with a belt road, which in turn connects with all railroads in East St. Louis. In detached buildings are the power house, gas producers, machine and pattern shops, storehouses, testing laboratories and the office building; the latter also contains the drafting rooms.

The material yard is on the south side of the main building near the furnaces and standard gage tracks connect this yard with the furnace platform, which is elevated about 13 ft. The raw materials are loaded in metal boxes placed on four-wheel cars, and these cars are moved about by a small switching locomotive. Gas for the open-hearth furnaces is supplied by Duff water seal producers.

On a track adjacent to the elevated furnace platform, and alongside the laboratory, is a self-registering scale which weighs each charging car. The gross and net weights are stamped on duplicate slips, one of which is filed at the scales and the other is sent to the furnace-man, who, in charging the furnaces, is guided by these weights and the analyses of the raw materials. Track scales just outside of the company's grounds are used for weighing cars shipped into or from the works.

There are four 15-ton Wellman tilting open-hearth furnaces along the south side of the main building, the furnaces being tilted by hydraulic power. On the elevated furnace platform and running in front of the furnaces is a standard gage track for cars loaded with raw materials, and, as stated, the materials are sent to the furnaces in small oblong metal boxes. A Wellman charging machine is equipped with electric motors enabling it to move along the track and also to perform the charging operations. The method used for pouring is to run the charge into a large bottom-tap ladle which is handled by the traveling cranes in pouring the molds.

Referring to the plan, A is the furnace room; B the casting room, with three 25-ton overhead electric traveling cranes; C the molding room, with two 15-ton electric traveling cranes; D is the core room, with four double core ovens, and the space at either end is used for chipping; E is the chipping and cleaning room, rooms D and E having together 25 air hoists mounted on small overhead cranes. F is at right angles to these rooms, and is served by a 5-ton electric traveler, the space being used for

ing and chipping rooms in D and E. In this department castings are handled by air hoists mounted on small overhead traveling cranes, and in this way they are delivered at the annealing oven; then after cooling they go to the paint tank, where they are dipped. From that point the castings are loaded on small push cars which are run on tracks to the loading yard. Finished material is finally loaded for shipment by a steam locomotive derrick.

It will be seen that there is a through shop track between the annealing room and the machine shop, and castings intended for that shop are taken over this track. In the construction of the Ajax pedestal truck, the ends of the transoms and the bearings on the side frames are machined, and large special milling machines are used, with which all the mill work on a single piece is done at one setting. In the same way a 14-spindle drill is used to bore all the holes for the rivet connections at one time. These large machines are driven by individual electric motors, while a number of small machine tools are grouped. The patterns storage room is separated from the adjoining shops by high fire walls. The tools in the pattern

engine direct-connected to a Western Electric generator; also there are hydraulic pumps and air compressors. The boiler and engine rooms are large and space is provided for additional boilers and engines. Electricity is supplied both for driving motors in the shops and for lighting in the several buildings and yards. All the shops are piped for compressed air and compressed air is also used to pump the water used about the plant from a deep well, the Pohle air system of pumping being used.

The office building is three stories, the first floor being used for office purposes. The second floor is a large well-lighted drafting room, and the third floor is fitted up for making blue-prints, and there is also a dark room for developing negatives. Also on this floor there are bath rooms for the use of the office force.

The accompanying half-tone engravings show interior views in several departments.

Railroad Building in Georgia.

Railroad building in Georgia, as in the neighboring Southern States, is being pushed with vigor. Recent returns to the *Railroad Gazette* show that there are 10 companies now building lines whose aggregate length will exceed 190 miles. Five of these lines are by old companies and five by companies recently organized. In addition there are about 30 projected lines aggregating some 1,500 miles in length. Probably a large proportion of these latter lines will never get beyond the paper stage.

Including the roads recently completed, Georgia now has about 5,800 miles in operation. The new building of last year was 137 miles, and 117 miles have been finished during the first six months of 1900. The record year was 1888 when 430 miles were completed. During the five years from 1887 to 1891 inclusive, there were built 1,646 miles of new railroad, which is two-sevenths of the entire mileage now within the State. There were 317 miles built in 1882, 263 miles in 1871 and 193 miles in 1870. The smallest building of recent years was in 1894 when only 57 miles were completed, the lowest since 1883.

Georgia's first railroad was opened in 1837, owned by the Central Railroad & Banking Company. It extended from Savannah toward Macon, nine miles. At that time there was less than 1,500 miles in operation in the entire country. In 1840 Georgia had 275 miles. Since that time the mileage has been as follows: 643 miles in 1850, 1,420 miles in 1860, 1,845 miles in 1870, 2,459 miles in 1880, 4,601 miles in 1890, and 5,800 miles in 1900.

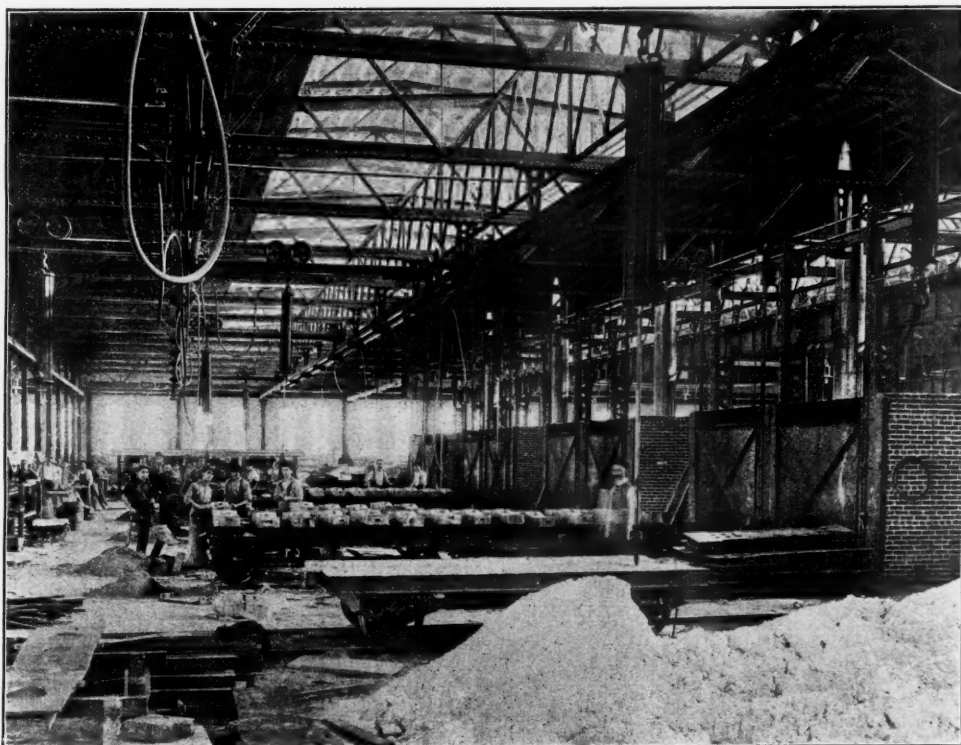
In Southern Georgia the Waycross Air Line is at work on an extension. At Waycross the road connects with several converging lines of the Plant System. The section from Waycross northwest 25 miles to Sessoms was opened in 1890. Building was resumed in 1897 and the line is now finished to Wadley's Mill, 53 miles from Waycross. From Wadley's Mill the company is building on northwest 23 miles to Fitzgerald on a branch of the Georgia & Alabama line of the Seaboard Air Line. Ocilla, a few miles south of Fitzgerald, is the southern terminus of this branch of the Georgia & Alabama. From that point a new company, the Ocilla & Worth, has built west $6\frac{1}{2}$ miles to Mystic on the Tifton & Northeastern. A further extension is building from Mystic west about 12 miles through Irwinville to Worth on the Georgia Southern & Florida. The road is being built by the Ensign-Oscamp Company of Worth.

From Fitzgerald the Tifton & Northeastern runs southwest 25 miles to Tifton on the Plant System. The Tifton, Thomasville & Gulf has just completed a line from Tifton southwest 56 miles via Moultrie to Thomasville on another line of the Plant System. The intention is to continue the building south from Thomasville about 36 miles to Tallahassee, Fla. A branch is proposed from Sunset, $5\frac{1}{2}$ miles south of Moultrie, to run west five miles into timber. At Moultrie connection is made with the Georgia Northern, which runs from that point south 31 miles to Piddock on the Plant System, and northwest from Moultrie 14 miles to Doe Run. The company has completed grading an extension from Doe Run northwest 22 miles to Albany. From Sparks, a few miles south of Tifton on the Georgia Southern & Florida, the Nashville & Sparks is building a railroad east 12 miles to Nashville. It is to be completed this year.

The South Georgia leaves the Georgia Southern & Florida at Heartpine, a few miles south of Sparks. It runs southwest 28 miles to Quitman on the Plant System. From Quitman the company is building south about 23 miles into Florida to connect with the Florida Central & Peninsular division of the Seaboard Air Line near Greenville. The objective point is said to be Tampa, about 250 miles further southeast. From Offerman on the Plant System the Offerman & Western has completed a line west about 70 miles to connect with the Southern at Hazelhurst. The route crosses the Waycross Air Line at Nicholls, $35\frac{1}{2}$ miles from Offerman, and is completed to that point. The road is being built by the Southern Pine Company, of Savannah. Another line under consideration is an extension of the Stillmore Air Line. This line runs from Collins, on the Georgia & Alabama, northwest 34 miles to Swainsboro. An extension is nearly completed from Swainsboro north 19 miles to Wadley on the Central of Georgia. A charter is granted for a further extension from Wadley north about 20 miles to Avera on the Southern. At Atlanta a belt line is being built under the charter of the Atlanta Belt, in the interests of the Atlanta & West Point, and runs from Oakland, junction of the Atlanta & West Point and the Central of Georgia, northeast $5\frac{1}{2}$ miles



Furnace Platform.



Core Room—Shickle, Harrison & Howard Iron Co. Steel Casting Plant.

storing flasks and such materials, and also for molding. G is the annealing room, containing one continuous annealing oven. All castings after cleaning are annealed and straightened. In annealing, the castings are put on cars having a fire-brick floor and the car is run into the oven, the floor of the car forming the floor of the oven.

From this description and the plan, the scheme for handling materials is evident but the principal features may be mentioned. Rooms B, C and D having switching tracks running into them so that material such as sand can be unloaded near where it is to be used, and within reach of the cranes. Cores are made in room D between the outer shop tracks and these are placed on cars and run into the ovens. After baking, the cars are run out on the opposite side into either room C or B, both of which are used for molding. Molds made in room C may be moved by the cranes into B, and nearer the furnaces, or they may be poured in room C, depending on which happens to be the more convenient way. Castings made in either of these rooms are loaded on four-wheel cars running on the outer shop tracks which lead to the clean-

shop are driven by electric motors and all of the shafting is below the floor. These shops, as in fact all the buildings, are unusually well lighted and ventilated. Near the machine shop is a small detached building used for storing miscellaneous supplies, such as bolts, nuts, rivets, etc. A similar building near the furnace is a storehouse for the more valuable furnace stock which it is desired to keep under cover.

In a separate two-story building close to the furnaces are the physical and chemical laboratories. The physical laboratory is on the first floor and contains a 100,000-lbs. capacity Rhie testing machine, and lathes and drills for preparing test specimens; these are driven by electric motors. It also contains the self-registering apparatus of the track scale previously mentioned, which is used for weighing the materials going to the furnaces. The chemical laboratory is on the second floor. The raw materials are all analyzed, and physical test pieces are also made from each heat. Four chemists are now employed in the laboratory.

The power house contains a 300-h.p. St. Louis Corliss

to the Georgia Railroad at Inman Park. It will require a tunnel about 300 ft. long and several trestles.

Among the extensions proposed by the older companies is that of the Bruton & Pineora by the Central of Georgia. This road was bought by the Central of Georgia at foreclosure sale in 1896. With recent additions it extends from Bruton east 58 miles to Register and is still unconnected with the parent company. An extension is proposed soon from Register east 39 miles to Pineora on the main line to Savannah. Another extension by the Central of Georgia is proposed in the southwestern part of the State, from Arlington northeast about 30 miles to Dawson, another line of the same company. Surveys have been made but building is not yet determined. The Seaboard Air Line has made several surveys for a line from Athens to run southeast about 225 miles through Augusta to Charleston, S. C., on the Atlantic. This is under the charter of the Chattanooga, Augusta & Charleston. It is expected that building will be begun soon.

The Georgia Pine owns 40 miles of railroad in the state from Bainbridge north to Arlington on the Central of Georgia. An amendment has been granted to the charter to extend the road north from Arlington about 35 miles to Cuthbert, and a further extension is proposed to Columbus, about 55 miles more. The charter also permits of an extension from Bainbridge south about 40 miles to Tallahassee, Fla. It is understood that building is to be begun soon. The Atlantic, Valdosta & Western finished 115 miles of road last year from Jacksonville, Fla., northwest to Valdosta. It is proposed to extend it 70 miles further northwest to Albany, where connection would be made with the Seaboard Air Line for Columbus. The Seaboard is understood to be interested in this road. Extensive additions are proposed for the Wadley & Mount Vernon. The line runs from Wadley, on the Central of Georgia, southwest 30 miles to Rixville. Amendments have been granted to the charter for an extension from Wadley northeast 55 miles to Augusta, and from Rixville southwest about 140 miles to Valdosta.

Two additions are proposed for the East & West Railroad, which runs from Cartersville southwest 117 miles across the Alabama boundary to Pell City, Ala. It is planned to build about 30 miles west from Pell City to Birmingham, connecting with the Birmingham Belt. From the eastern end an extension is proposed to the Seaboard Air Line which now stops at Atlanta. It is said that the Seaboard is interested in the plan. Hawkinsville is the center of two or three projects. The Wrightsville & Tennesse, which runs into Hawkinsville from Tennesse and Wrightsville to the northeast, has surveyed an extension from Wrightsville southwest about 30 miles to Cordele to connect with the Georgia & Alabama and other roads. The Hawkinsville & Florida Southern runs from Worth north to Pitts. Locating surveys are in progress for an extension from Pitts north about 30 miles to Hawkinsville. It is to be laid with 56-lb. steel. The Hawkinsville, Fitzgerald & Gulf proposes to build from Hawkinsville south about 45 miles to Fitzgerald. A short road known as the Midville, Swainsboro & Gulf connects Swainsboro with Midville. Extensions are proposed at either end and the company has made the necessary changes in its incorporation. From Midville it is proposed to run a line northeast about 50 miles to Augusta. The extension from Swainsboro is southwest about 150 miles to the Florida line in Lowndes or Thomas counties, and thence to a point in Florida on the Gulf of Mexico. Interest is being revived in an extension of the Chattanooga, Rome & Southern from its present southern terminus at Carrollton. It is said that bids are being received. The proposition is to build south about 90 miles via West Point to Columbus, for a connection with the Seaboard Air Line.

Notes on Maintenance of Way Engineering.

Some Little Things.

In preceding letters I have laid so much stress on the advisability of not stinting time spent on some classes of work that it may cause a question in the mind of an overworked brother as to where he shall save this extra time from, his nights and Sundays being already encroached on in the effort to make his time go around. I can only suggest to the overworked one that he see if he does not now do some work that is not necessary.

In staking out side-tracks, yard tracks and passing tracks, can he not dispense with transit work? Most roads have standards, and others should, for passing tracks. The figuring up of offsets from main track takes less time than figuring deflection angles and will make as neat work when completed. You save the time you would spend on transit work. Often you are called on to cross section a passing track on a tangent. By adding the height of rail and thickness of tie together, say 0.8 ft., you get the amount your grade line is below top of rail. By taking the rod yourself and having one assistant hold tape and the other keep the book, you can sight across the rails which are level and read your rod, subtract your 0.8 and call the fill and do work in half the time it would take with an instrument. When you are cross-sectioning for raising a piece of track on tangent, drive a spike in each telegraph post 0.8 ft. above new grade at that point and your trackmen can surface the track without your having to come back and set grade stakes. When you are called on to measure a piece of irregular ground to ascertain the area of flood or fire damage, you can get it much more rapidly than by chaining if you have your assistant go ahead to the first point where the course changes give you a sight on it, set your instrument at

zero, wave "all right" to him. When he measures at right angles 50 ft. with a linen tape and gives you another sight, unclamp your vernier, read on this point and note the angle. The Nat. Cotan. of this angle multiplied by 50 will give the distance, and it takes about one-third the time it would to chain it.

Beyond these suggestions, use your head. When you make any survey, make it thorough. Take and record every possible detail. It will save you time in the future. Try to always have some old iron bolts and every time you establish a corner plant a bolt and reference it plainly. I would also allow all city and county surveyors access to my notes of such data. Every surveyor who makes use of your corner helps make it an authority. By sending a surveyor a blue print of your line through his county showing your land ties, you give him an easy way of finding your corners, and it is to his interest to use your corners as he saves time by it. And it lessens chance of contest of your lines. Furnish surveyors of counties and smaller cities with elevations of as many of your convenient bench marks as you can, and get them to adopt your elevations, and in flood damage cases there will be less discrepancy in opinions as to elevations.

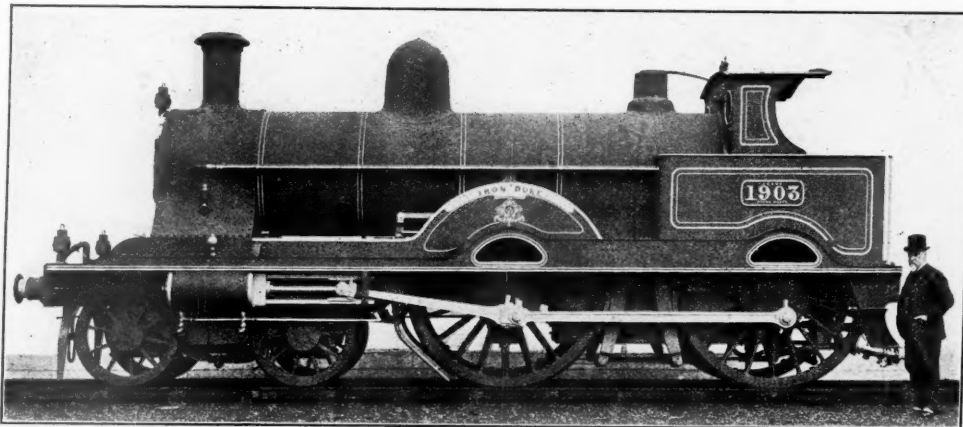


Fig. 1.—The Webb Balanced Compound for Express Passenger Service.

These little courtesies will be means of causing good feeling among those who can often return the favor.

Another thing which will save a great deal of time and is so simple that it is surprising that it is not always used and yet one so often sees where its absence causes loss of time and some temper, is to mark on the back of each map, tracing, blue print and profile in plain black letters, at each end, what it is and where it is. Then, whichever end is rolled on the outside the first glance tells whether it is what you want or not, with no loss of time.

Another thing which causes slow work and anxiety is the paint, either dim or gone, from transit poles and level rods. And it is almost always possible to have these touched up at the car shops by keeping on good terms with the foreman painter, and you can usually get small repairs to tripods, chains, etc., made at the tin and copper shops in the same way. Many an equipment would

side of the frames driving cranks in the wheels. Its 85-in. driving wheels are spaced to give a rigid wheel base of 9 ft. 8 in., making necessary an unusually long coupling rod, and its small cylinder ratio of 1 to 2.3 has been the object of some criticism. Unlike the French balanced compound, all cylinders of this engine connect with the forward axle or with wheels attached thereto, and while there is a valve for each cylinder, there is no duplication of valve gears. The valves of the outside cylinders receive motion from rockers actuated by the valve stems of the cylinders inside, which in turn are driven by a Joy valve gear of a form common in English locomotive practice. The performance of the engine illustrated, in high speed passenger service seems to have fully met the expectations of the designer and is made the subject of an interesting paper recently read by Mr. Webb before the Institution of Mechanical Engineers.

The latest design of M. Baudrey, of the Paris, Lyons &

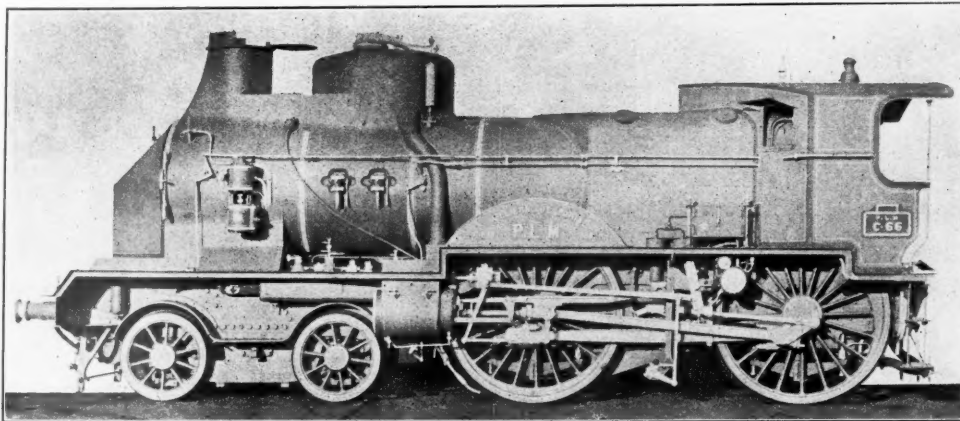


Fig. 2.—The Baudrey Balanced Compound for Express Passenger Service.

be vastly improved if the tripods were to have shoes tightened, and heads smoothed up, and the brass work on the level rods overhauled by the copper worker, and the expense would be nominal.

Many an office might have a good outfit of tables, pigeon holes, drawers for maps, etc., made at the car repair shops at odd spells in the same way. Don't ask for all at once, but make a plan and send in a blue print for one at a time. In a year or two you will have your office supplied with all you need.

Birmingham, Ala.

TRANSIT.

"Step lively," has reached Paris, of all places in the world, and the passengers on the new underground road complain of the way they are hurried. The Prefect of Police has given strict orders against overcrowding the cars, and in view of accidents that have occurred orders that the "permissive block" system, which had been employed, must be given up, and the absolute block system followed. In October the number of passengers varied from 106,000 to 157,000 daily.

Mediterranean, for high-speed passenger service is shown by Fig. 2. The high-pressure cylinders are outside and connect direct with the rear driving axle, while the low-pressure cylinders are inside and connect with the forward axle, both axles being made to move in unison by the presence of outside coupling rods. Each cylinder has its own valve gear.

The view shows the highest development of the wind plow, common to M. Baudrey's practice. These consist in giving a wedge-shaped front to the cab, dome, stack and smoke-box. Their purpose is to reduce the atmospheric resistance to the motion of the locomotive, and a French estimate credits them with adding 10 per cent. to the tractive power of the locomotive to which they are attached. We understand that in recent construction the wedge has been omitted from the front of the smoke-box, experience having shown that accessibility at this particular point is worth more than low atmospheric resist-

*"Recent French Locomotives," *Railroad Gazette*, Sept. 14, 1900; also "The Mallet Articulated Compound Locomotive," *Railroad Gazette*, Sept. 28, 1900.

the merchants of New York want a commission which is constituted like the courts before they will be willing to entrust it with their transportation controversies.

What degree of sympathy Mr. Langley evoked in the convention we are unable to say, but so far as one can judge by the published reports, and by the utterances of the leaders in the movement, the present agitation has no more basis of reason or of true business interest than had the similar agitations of last year and the year before. Of those who support the movement from rational and honorable motives nearly all seem to depend for their justification entirely on the claims put forth by the members of the Interstate Commerce Commission. Those claims are unsound, and Mr. Langley has clearly stated one of the chief reasons why they are unsound.

We call attention to these doings of these merchants simply to remind those of our readers who believe in giving the Commission more power not to fall into the error of supporting a movement simply because it appears to be gaining in the number of its adherents. We do not belittle the promoters of the movement or the magnitude of their business interests. But increasing support does not necessarily mean that there is any more or better evidence of merit in the measure. No new arguments have been presented in favor of the proposition to confer important additional powers on the Commission, and no force has been added to the old arguments. The merchants have, indeed, presented hardly any arguments at all. They simply stand back of the Commission's arguments. The burden of these is that (1) numerous shippers suffer injustice, (2) that the state ought to put an end to this injustice, and (3) that a Federal commission ought to undertake the task, because the courts are too slow; and, fourthly, that a commission exercising the powers prescribed in the Cullom bill would be the proper remedy for the case. The first three points are so reasonable that most people will readily assent to them; but that the fourth is sound because of the soundness of the other three is mere assumption; and, we believe, a dangerous assumption. Before any conservative business man east of Chicago intelligently assents to the principal features of the Cullom bill, he will, we believe, at least demand the changes which the New York merchants now ask for; and if he means to profit by the plain lessons of experience he will go further, and ask for what Senator Tillman called a "double-barreled commission"—such as they have in England.

Motive Power Changes in New York City.

We spoke last week of the change in motive power on the Manhattan Elevated. Certain motive power matters now going on on the surface roads are also worth watching. The Metropolitan Street Railway Company is now trying motor cars driven by compressed air and by storage batteries, and the outcome will be important not only to the railroad company and to those who may build and supply these motors, but also the public.

We have often stated the peculiar reasons which make it especially important to the Metropolitan Street Railway Company to get an adequate independent motor. In the last business year that company ran 9,812,000 car miles by horse power at a cost of 18.98 cents per car mile. In the same year the cost of electric working (by the conduit-conductor) was 13.16 cents per car mile. Had the horse car work been done by electricity the saving would have been \$517,000, a tidy addition to the net revenue of any company. But the gain would not have stopped there. There is no knowing how much the traffic would have increased. We should suppose that it might have doubled. Obviously there is sufficient reason for changing from horse power to mechanical power, but in the City of New York overhead wires are not permitted, and if the Metropolitan Company uses electricity it must use either the underground conduit or the storage battery.

The interest charges on the underground conduit are very heavy, so heavy, in fact, that were this the only possible motive power, it is likely that the development of the street railroad system of the city would be a great deal hampered, especially in that crossings and connecting switches would be avoided in order to save costly special work. Furthermore, there are some important streets along the water front in which the underground conduit must often be flooded. Aside from the mechanical difficulties of the situation, there would come a point where the interest charges would be so heavy that the further use of this form of mechanical traction would be unprofitable, not to say impracticable.

Furthermore, the proper development of the street railroad service in New York City requires a certain flexibility in routing cars, which to get the best re-

sults must be diverted to various routes at various hours.

All of these considerations point to an independent motor by the use of which a car can be put on any street rails without either overhead or underground construction. It is quite obvious that such an arrangement would be immensely advantageous.

We have recently described at considerable length the working of the compressed air cars in New York City. For that description the reader may look back to our issue of Nov. 23, page 768, where he will find not only a description of the mechanical features of the motors and cars, but some estimate of the cost per car mile of working. All that we need, say now, is that, so far as we can learn, the compressed air cars are given satisfaction to the street railroad company and to the public.

Of the storage battery cars we can only say that they are perfectly agreeable to the public. They start smoothly, accelerate quickly, run with very little motion, and are bright and clean and attractive. The immense weight which they carry in accumulator cells adds to the comfort of the passengers in that it steadies the motion, but obviously it does not add to the net revenue of the street railroad company inasmuch as it rapidly piles up to ton-miles hauled.

We think it is precisely true that no storage battery cars run up to the present time have been successful, and that all so far tried have been unsuccessful, and this is a pretty strong reason for expecting that the experiment now going on in New York will not succeed. On the other hand, these storage battery cars work under special conditions. In the first place, for the reasons pointed out above, the company can afford to pay more per car mile than the cost of working by trolley; but beyond that the Metropolitan Company is an enormous producer of electric current, and this current is produced under conditions which cause great fluctuations in load in the power house. Therefore, the company may find it advantageous to store electricity at some hours of the day and night, this to be used on storage battery cars; that is, under such conditions some greater or less percentage of the current used on the storage battery cars is a by-product.

It is not worth while to carry this speculation further, because it is yet pure speculation, but, as we said at the outset, these trials of independent motors are of importance to those who have to manage street railroads in great cities, as well as to the public which travels.

The Isthmian Canal.

The preliminary report of the Isthmian Canal Commission has been sent to Congress by the President, and we are able to present the main points. The report in full will not be published for some months yet. The names of the members of the Commission must be tolerably familiar to our readers by this time, but for their convenience we repeat them, namely: Rear Admiral John G. Walker, U. S. N. (retired); Col. Peter C. Hains, Corps of Engineers, U. S. A.; Lieut.-Col. Oswald H. Ernst, Corps of Engineers, U. S. A., and Messrs. George S. Morison, Alfred Noble, William H. Burr, Samuel Pasco, Lewis M. Haupt and Emery R. Johnson.

Taking the figures of cost of the Nicaragua and the Panama Canal, these figures being for the deepest and most capacious canals estimated on and properly comparable, they are: Nicaragua Canal, \$200,540,000, time of construction 10 years; Panama Canal, \$142,342,579. The details of these estimates and possible modifications will be given below. These estimates are for a depth of 35 feet at mean low water and a bottom width of 150 ft. with locks 740 ft. long, 84 ft. wide and 35 ft. deep. The locks also are to be in duplicate. The Nicaragua Canal would be 186 miles long from ocean to ocean, and the Panama Canal would be 43 miles long. The time to complete the Panama Canal would also be about 10 years; but we do not see that the Commission expresses an opinion on this.

The various considerations that govern the choice of routes are summed up as below:

The estimated cost of the Nicaragua Canal is about \$58,000,000 more than that of the Panama Canal, leaving out the cost of acquiring the Panama property. The French company has made no formal answer to a request for the terms on which it would dispose of its property to the United States. It is conjectured that if the company would sell, the price asked would be enough to equalize the cost. This estimated difference of \$58,000,000 measures the difference in all the physical considerations, including dams, cuts, natural harbors, the railroad, liability to disease, etc.

The Panama Canal would be shorter, with fewer locks and less curvature. Thus the average time of transit would be about 12 hours as against 33 hours for Nicaragua. On the other hand, the sailing distances approaching the canal are greater, namely, San Francisco to New York, 377 miles more than by Nicaragua; to New Orleans, 579 miles more, and to Liverpool, 386 miles more. These greater sailing distances would somewhat more than offset the gain in time of passage through the Panama Canal, so far as the United States is concerned, and it is believed would be sufficient to offset the greater cost of maintaining the longer canal.

The concession to the Panama company is exclusive, with many years to run, and the government of Colombia cannot grant rights to the United States except after an agreement with the new Panama Canal Company. The Commission believes that such agreement is impracticable. The company does not appear to be willing to sell its franchise, but will allow the United States to become an owner of part of the stock. This kind of agreement the Commission considers inadmissible. On the other hand, the governments of Nicaragua and Costa Rica are untrammelled by concessions.

In view of all the facts, and particularly in view of obtaining the necessary rights and franchises on the Panama route, and assuming that Nicaragua and Costa Rica are prepared to grant concessions on reasonable and acceptable terms, the Commission is of the opinion that the most practicable and feasible route for an Isthmian canal, to be under the control, management and ownership of the United States, is that known as the Nicaragua route.

Certain particulars taken from the preliminary report follow:

| Nicaragua Route—Estimate of Cost. | |
|---|---------------|
| Eastern division (from Greytown to Boca San Carlos dam) | \$82,062,000 |
| Middle division (from Boca San Carlos dam to Las Lajas) | 25,425,000 |
| Western division (from Las Lajas to Brito) | 51,680,000 |
| Ninety-eight miles of railroad | 7,350,000 |
| Total | \$167,117,000 |
| Engineering, police, sanitation and general contingencies | 33,423,000 |
| Aggregate | \$200,540,000 |

This estimate is for a canal suitable for navigation by the largest ships now in existence, and thus in accordance with the terms of the bill pending in Congress. It provides for a double system of locks, so that navigation can be maintained if one system be closed for repairs or renewals. If a single lockage system is provided the cost will be reduced \$19,678,000. Narrowing the bottom one-third will permit a further reduction of \$16,949,000. This would bring the estimated cost down to \$163,913,000.

| Panama Route—Estimate of Cost. | |
|---|-------------|
| Colon entrance and harbor | \$7,334,673 |
| Harbor to Bohio, locks, including levee | 10,718,288 |
| Bohio locks, including excavation | 10,982,345 |
| Lake Bohio | 2,786,449 |
| Obispo gates | 295,436 |
| Culebra section | 44,378,325 |
| Pedro Miguel locks, including excavation and dam | 8,496,326 |
| Pedro Miguel level | 1,169,611 |
| Miraflores locks, including excavation and spillway | 5,720,363 |
| Pacific level | 12,366,914 |
| Bohio dam | 8,500,000 |
| Gigante spillway | 1,124,524 |
| Channel between the marshes | 1,448,076 |
| Chagres diversion | 1,929,976 |
| Gatunillo diversion | 100,000 |
| Panama Railroad diversion | 1,267,500 |

| | |
|---|---------------|
| Total | \$118,618,816 |
| Engineering, police, sanitation and general contingencies | 23,723,763 |
| Aggregate | \$142,342,579 |

This estimate is capable of reduction to \$115,941,215 if single locks and a narrow bottom are adopted. An alternative estimate is submitted, based on having the Alhajuela dam built to impound the waters of the upper Chagres. This estimate is \$156,378,258.

The Commission reports that the value of the French work already done is estimated at \$33,934,463.

We have spoken several times of the excellent scheme developing at Cornell University for training young men for railroad work and particularly for the mechanical departments. One of the practical features of the course there is frequent visits to shops and regular summer vacation work in locomotive shops. Beginning next year the main course in the railroad school will be open only to such seniors as have spent at least one entire summer vacation in the shops of a railroad company or locomotive works. Last summer 29 shops opened their doors to the students of the University. Some of those who are now in the senior class have had two summers in the shops and next year some will have had two summers in shops and a third summer in the draughting room of a locomotive works. All of this is most admirable and we know from careful observation and considerable experience that summer work of this kind is one of the most important parts of the education of a boy for the engineering profession. All of this is brought to mind by a short description which we have just received of the regular November inspection trip of the students in railroad mechanical engineering to shops in Scranton. The longest tour of each year is taken during the Easter vacation. The parties are always under the personal direction of Prof. Hibbard, who is at the head of the school of railroad mechanical engineering and gives lectures to the class on the spot. On this Scranton trip the boys had some experience of rather unusual interest, as they encountered a series of washouts on their way, had to push their baggage on a hand car and tramp the ties themselves and thus learn something about practical railroading. The two days at Scranton were used in an experimental study on the spot in the history of railroad steel from the ore through the finished product of locomotive and car machinery and so to the scrap pile. They inspected an anthracite coal mine, looking especially into the hauling and pumping machinery, went through blast furnace works and Bessemer works, visited the Dickson works and the repair shops of the Delaware, Lackawanna & Western.

The Supreme Court of the United States has sustained the law of Kentucky requiring railroads to furnish separate cars for colored passengers. The objection of the

Chesapeake & Ohio, that the law was an interference with interstate commerce, is answered by the dictum that the road need not consider the law in carrying interstate passengers. The report of the decision will be found in another column. This must be accepted as good law, and probably it is such; but it is poor justice. The Kentucky statute is presumed by the courts to contemplate the use of separate cars for interstate passengers; and with public sentiment as it is in the Southern States, this legislative requirement, increasing the expense of running passenger trains, is, no doubt, looked upon as fair and just. But if a railroad tries to carry both interstate and intra-state on the same train (where, usually, one car is enough to hold all of the passengers who do not smoke) which shall change cars at the state line, the whites or the blacks? Assume that it shall be the blacks, they usually being in the minority. Then when a train comes into Kentucky from West Virginia the negroes will be invited to take seats in another car. But these passengers can decline to change, because they are interstate; what then? If they retain their seats their presence will be offensive to the white passengers who board the train in Kentucky, although those white persons in the car who came through from West Virginia must be assumed voluntarily to have accepted the negroes' company. The only course open to the railroad would seem to be to run three cars. At first thought it might seem to be sufficient to run two; but if the interstate negro passengers insist on staying in the white folks' car the white Kentuckians can lawfully object to entering that car. Using three cars where one would carry all the passengers is perhaps as good economy as could be expected from a Legislature. Such a law is a good thing if it is desired to compel the railroads to postpone reductions in fares. And it is to be remembered that the use of partitions, making two compartments in one car, does not wholly meet this objection, for the smaller the space allotted to either race the greater the likelihood of frequent occasions when one compartment will be crowded while the other has room to spare.

NEW PUBLICATIONS.

Master Car and Locomotive Painters' Association.—The *Proceedings* of the 31st annual convention of this Association, held in Detroit last September, are now issued in a bound volume of 148 pages, with index, constitution and list of members. The Secretary is Mr. Robert McKeon, Erie Railroad Company, Kent, Ohio, from whom, no doubt, copies can be had.

TRADE CATALOGUES.

The Sterlingworth Steel Car.—The Sterlingworth Railway Supply Co., Easton, Pa., sends a second and enlarged edition of its car catalogue illustrating the Sterlingworth rolled steel car which attracted so much attention at the convention last June. The company says that since the close of that convention it has received letters from ten roads asking for specifications, prices, etc. The engravings show a gondola, a hopper bottom ore car, a box car and two flat cars.

Automatic Signals: Normally clear vs. Normally danger. This is the title of a pamphlet entitled Bulletin No. 5, which has been issued by the Union Switch & Signal Company, Swissvale, Pa. It contains the arguments, amplified and illustrated with drawings, which have been published heretofore by this company, or by Mr. J. P. Coleman, setting forth the advantages of the "normal-clear" arrangement and the disadvantages of the "normal-danger."

Signaling for the Pan-American Exhibition.

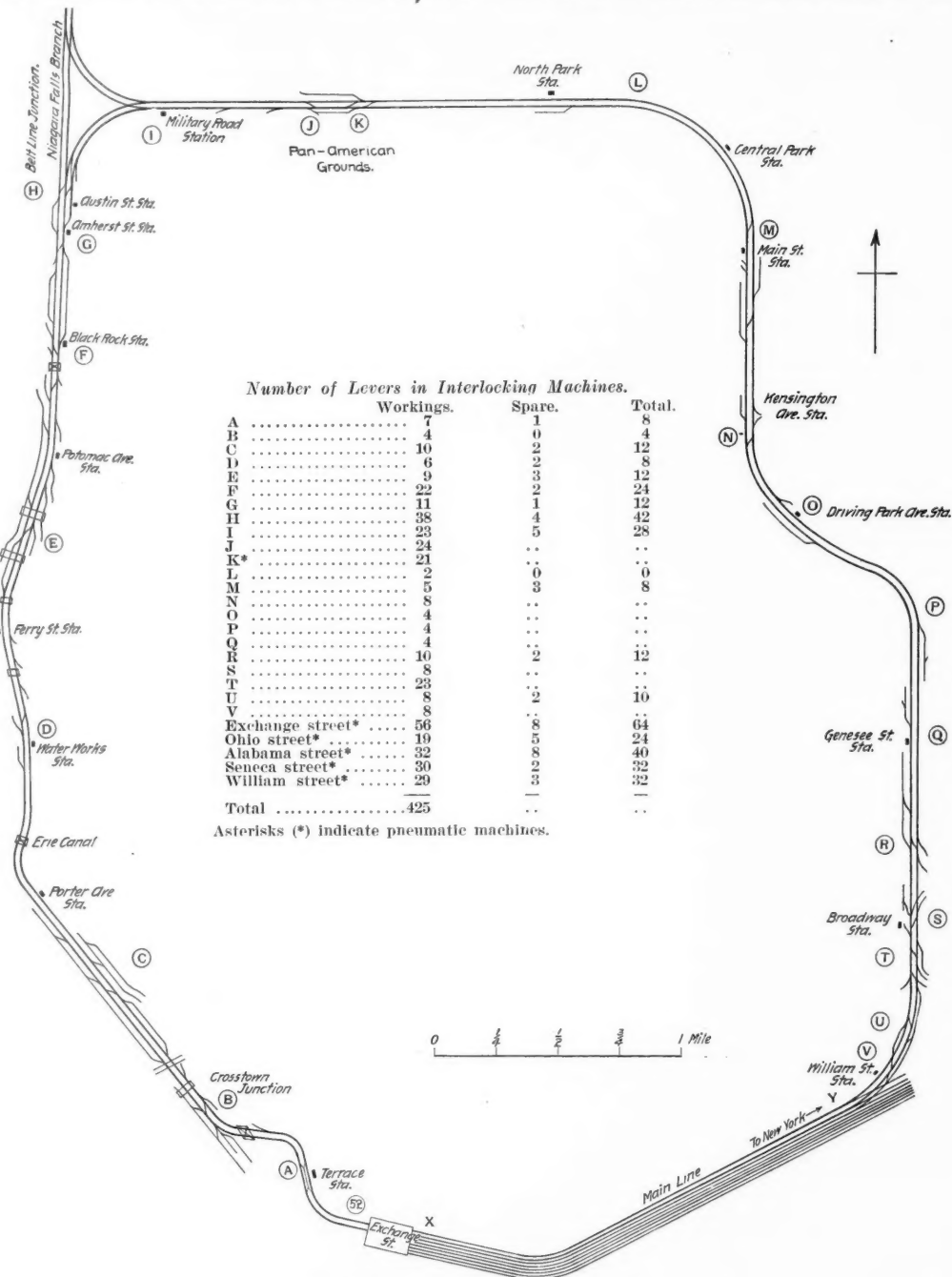
In making its preparations for the increased traffic which will have to be carried over the Belt Line at Buffalo, during the Pan-American Exhibition next summer, the New York Central & Hudson River road has given an order for no less than 27 interlocking plants; and six of them are to have low pressure pneumatic machines. All of this signaling is to be done by the Standard Railroad Signal Company, of Troy, and those machines which are not pneumatic will be of the Standard Company's mechanical pattern, with vertical locking. This signaling equips the whole of the Belt Line, so called, about 18 miles, which extends around the city of Buffalo. We give herewith a sketch showing on a small scale the approximate location of this line. From the Union Passenger Station (Exchange street) eastward to William street the Belt consists of a part of the main line, and from Exchange street northward to Belt Line Junction it is a part of the Niagara Falls branch. The whole of the line is double track, and local passenger trains make the circuit each way every 30 minutes during the day. For the exhibition traffic the number of these trains will, of course, be indefinitely increased. The location of the various crossovers and sidetrack connections, as shown on our sketch, is subject to some changes, but in a general way it may be said that all of the main track switches will be suitably protected and signaled, and the manual block system will be introduced throughout. The location of all of the towers, except those on the main line, is indicated on the sketch by capital letters, each letter surrounded by a circle. All of these except K, at the eastern end of the Pan-American station, are to

have mechanical machines. The plant at K, pneumatic, will serve as an exhibit of the Standard Railroad Signal Company and is put in, we understand, at the Signal Company's expense. The other pneumatic plants are to be at Exchange, Ohio, Alabama, Seneca and William streets; that is to say, on that part of the main line which extends from X to Y.

The compressor already in service at Exchange street,

have weight in the determination of questions, unless its members feel that they do not owe their existence or continuance in office to any political backing, and unless they can feel that they are not to be plunged into the midst of political agitations for the purpose of holding themselves in power.

In fact, I think we ought to go a step further in amending this bill and provide that the number of Com-



The Buffalo Belt Line of the New York Central.

for the existing plant at the west end of the station, will serve for these five new ones.

The total number of levers in all these plants is to be about 425; 238 mechanical and 187 pneumatic. The exact number which will be required at each interlocking has not yet been fully settled upon, but approximately the figures are as shown in the table accompanying the sketch.

New York Merchants on the Interstate Commerce Law.*

The arguments that have been presented in opposition to the proposed measure (the Cullom bill) as it now stands, have features which are of sufficient merit to indefinitely postpone its enactment and possibly to accomplish its ultimate defeat. The proposed amendment imposes upon the Commission vast responsibilities and duties involving matters of grave importance. The Interstate Commerce Commission should be removed from all suspicion of political influence, so far as that is possible, in its make-up and in its life, so that, in the eyes of the public, it may stand upon a plane similar to that occupied by the Supreme Court of the United States. If it is to make decisions on the intricate and far-reaching questions which are to come before it under the enlarged powers which are proposed in this bill, conservative people would feel far safer if they knew that the Commission was removed from politics and all political influences. I do not mean to imply that the present body is susceptible to political influences; but in the very nature of things, such influences are almost certain to

missioners shall be increased so as to include among them, first, men trained in railway freight management, and, second, men who are thoroughly familiar with commercial affairs, who could act as advisers in the practical and technical questions which are sure to come before them. The adjustment of rates in Interstate Commerce is a delicate task involving intricate questions. While undoubtedly an administrative body of proper jurisdiction may determine principles which are supposed to underlie matters of this sort, yet in deciding the proper application of those principles and the equitableness or reasonableness of rates under the complex conditions existing in this country, there ought to be among the members of that body those who have made a study of the subject in all its involved ramifications. The principal opposition to giving to the Commission the enlarged powers proposed in this bill arises from the fear that questions of great import will be passed upon by men not trained to regard the subject from other than elementary, purely legal, or political standpoints.

Briefly stated, we believe: 1, That the Interstate Commerce Commission should consist of at least eight members, among whom shall be lawyers, railroad experts and representatives of the shipping public; 2, That the Commissioners should be appointed to hold office during good behavior, as in the case of the United States Supreme Court; 3, That common carriers should be given the right to enter into agreements, approved by the Commission, in respect to interstate commerce, only for the purpose of carrying into effect the provisions of the act.

Our reasons for the first two propositions have been set forth above. With respect to the third, we may say that aside from the fact that it is our belief that no amendatory legislation can be passed unless this

*Statement of James M. Langley, of the Merchants' Association of New York, before the Interstate Commerce Law Convention held at St. Louis, Nov. 20.—Condensed.

feature is included, we are convinced that the change in business methods and conditions which have been wrought by the consolidation of industrial, manufacturing and business interests make this privilege essential to the successful administration of the act. Powerful corporations which have become accustomed to ignore the law when they felt that its strict observance by them was detrimental to their interests, will continue to find secret and illegal ways to compete for the large volume of traffic controlled by commercial combinations, notwithstanding the stringency of any laws that may be passed. Legalized right of contract among carriers will, we feel, minimize the incentive to practice illegal acts and bring to the aid of the Commission, in the discharge of its important functions, that degree of co-operation on the part of railway managers that heretofore has been so necessary but at the same time so conspicuously absent. It also removes the objection that the proposed legislation is solely in the interest of shippers.

By adopting these suggestions the principal points of the opposition to this measure will be eliminated, and at no sacrifice of the object in view, namely, an equitable adjustment of maintained and reasonable rates throughout the United States. If the Interstate Commerce law cannot be amended in a manner that will assure its successful administration, we shall energetically labor for its repeal and a return to the condition existing prior to 1887. The law in its present form, as construed and applied, is a conspicuous failure. Ineffectual attempts to administer it result not only in the useless waste of at least \$250,000 public funds yearly, but it is continually used as a screen to conceal the very practices it was designed to prevent.

A Pumping Engine Trial.

We published last February (p. 113) some data of tests of a 20,000,000-gal. pumping engine, the engine by Snow and the tests by Prof. Goss. In the October issue of the *Stevens Indicator* appeared an elaborate report by Prof. J. E. Denton of tests made by him of a 12,000,000-gal. Allis pumping engine. In this report he compares the Allis engine with the three best contemporary pumping engines, the Snow at Indianapolis, the Leavitt at Chestnut Hill, and the Nordburg at Wildwood. We reproduce below a few particulars.

This Allis engine is of the vertical triple-expansion type, with cylinders 25.5 in. x 4.7 in. x 73 in. diameter x 42-1-16 in. stroke, and a single acting plunger of 25.524 in. diameter connected directly to the cross-head of each cylinder; operating with 175 pounds (gage) steam pressure, against 114.6 pounds water pressure, at 30.095 revolutions per minute. The valve gear is of the Corliss type, with cylindrical valves, excepting that controlling the exhaust of the low cylinder, where poppet valves are used with provision for their gradual rotation to secure uniform wear and tightness. A jet condenser is used, the air pump being operated by direct connection to the low cross-head. The barrels of all cylinders and the receivers are jacketed. The system of jacketing reduces the auxiliary apparatus to a single automatic trap, and two gravity water-sealed discharge pipes. The trap collects all the live steam used for cylinder jackets and reheaters, and discharges it as a liquid into the low steam chest, so that it may do work by expansion on the low piston. One of the gravity discharge pipes delivers the condens-

The results of the trial required by contract, and for general comparison are here given in brief.

| | Allis Hackensack Pump. | | Best previous record |
|--|------------------------|--------------------|-------------------------|
| | Limit by contract. | As found by trial. | Snow Indianapolis Pump. |
| Gallons per 24 hours piston displacement | 12,000,000 | 12,132,152 | 20,600,000 |
| Duty per 1,000 lbs. of dry steam, ft.-lbs. | 145,000,000 | 168,532,800 | 167,800,000 |

Car Interchange Rules in Europe.

Dr. Max Hölzel, a German authority on traffic statistics, has been writing on the economic effect of the German Railroad Union's rules for the interchange of freight cars, in the course of which he summarizes the regulations of other principal countries, which may be interesting to know.

The most notable and peculiar system is that of Russia, where there is no charge whatever, per diem or per mile, for cars received from connecting roads, but the account is settled in cars, each different kind, open, box, stock, loaded and empty, etc., having a fixed valuation. Every railroad is bound to treat the foreign cars as if they were its own, but it can send them anywhere and use them as it pleases; only every two years every car must be sent to its home road, to be inspected, and under certain circumstances the owners may require them to be sent back at other times, but then they must pay for the forwarding of them. There is a government inspection every two years, and in accordance with the conditions thus found the government requires additions by the several companies sufficient to keep their stocks good. We find no statement of the time within which the company receiving cars from a connecting line must return it an equivalent, which would seem to be the capital question. It is claimed for this method that the cars go where they are most needed, and do not waste time running empty on the way back to the home road when they are not needed there.

The English railroads pay mileage, but no per diem, for loaded cars only received from foreign roads. The cars may be returned at any station of the connecting road, not necessarily at the station where they were received, and they may be returned either loaded or empty. But they must be returned within a limited time, an allowance of time being made for unloading and another, according to distance, for the run. If this time is exceeded, a high charge is made for every day's delay. The mileage charge differs with the kind of car and is lower for long than for short hauls. It is calculated and charged at the Railway Clearing House, which has its agents at all considerable junction stations.

The French railroads also pay only car mileage, but they pay for empty as well as loaded cars. The cars must be returned at the nearest junction station. The charge is 1 centime per axle per kilometer, which for nearly all freight cars is 0.31 cent per mile. For delays beyond the time fixed for the given distance a charge of 3 francs per car per day is made.

The German Railroad Union's system applies not only on the 50,000 miles of railroad in the Union, but also on the through movement across Switzerland into Italy, and the lines in the Balkan peninsula. It is a combination of a mileage with a per diem charge. The distance charge is 1 pfennig per kilometer per car = 0.384 cent per mile; the per diem charge 1 mark = 24 cents per day, one day being allowed for unloading without charge.

The international regulations governing the interchange of cars of German Railroad Union roads and those of France and Belgium follow closely the Union regulations. The German system originally had no per diem charge, except the fine for undue delay; the present combined per diem and mileage system was introduced in 1872. Dr. Holtzel would much prefer the Russian to the German system, were it practicable to introduce it in a system which, like the German Union, covers several countries. He also thinks the German charges too high, and that they cause much unnecessary hurrying of empty cars homewards.

TECHNICAL.

Manufacturing and Business.

W. W. Butler has resigned from the American Car & Foundry Co. to accept the position of Second Vice-President, Simplex Railway Appliance Co., of Chicago, and will have charge of the Eastern branch of their business with office in New York City.

The Simplex Railway Appliance Co., Chicago, will furnish body and truck bolsters for 800 cars for the New York, Chicago & St. Louis, 575 cars for the New York, Ontario & Western, and 100 cars for the Cincinnati, Hamilton & Dayton.

Mr. I. A. Sweigard, who recently resigned as General Superintendent of the Philadelphia & Reading, has been elected Vice-President of the Johnston Railroad Frog & Switch Co., of Chester. Mr. Sweigard has also been made a director, and will enter upon his new duties at once.

H. W. Hoyt, Secretary and General Manager of the Gates Iron Works, was elected President of the National Founders' Association at its recent convention held in New York. This Association, which represents capital of more than \$200,000,000, is the largest body of employers in the United States having the avowed object of promoting harmonious relations with its employees.

Gates Iron Works, Chicago, Ill., has received an order from the Homestake Mining Co. of Lead, S. D., for 10,000 special stamp shoes. This is probably the largest order for stamp shoes ever placed by one company; 51 freight cars will be required to transport it. The Gates Iron Works have been successful in producing stamp shoes combining great strength and hardness, and have been supplying the Homestake Co. with their shoes for several years, the trade having been established under severe competition on the point of quality.

Iron and Steel.

The property of the Elmira Iron & Steel Rolling Mills Co. was sold at auction on Thanksgiving Day.

Bids are wanted until Dec. 14 for 910 tons of rails, 54 tons of fishplates, 12½ tons of relaying rails, for the State Railroads, Denmark. General Director, I. V. Tegner, Helgolandsgade 12, Copenhagen.

Bids will soon be wanted at the Bourse, Brussels, Belgium, according to report, for about 1,800 tons of rails (Vignole type). E. De Rudder, Chief Engineer, Ways and Works Department, State Railroads, Brussels.

Francis L. Potts, of Philadelphia, has been elected Second Vice-President of the National Tube Co. Wm. H. Latshaw, of Pittsburgh, heretofore First Assistant Treasurer, succeeds Mr. Potts as Third Vice-President.

The plant of the Bellefonte Iron & Nail Co., which was put in operation in March, 1882, and closed down three years later, was sold at auction last week to Jos. G. Hittner, of Philadelphia, for \$6,375. The building and machinery originally cost \$185,000.

James P. Kennedy, General Superintendent of the Operating Department of the American Bridge Co., is established in Pittsburgh, and will have charge of all departments. Mr. Kennedy was formerly General Manager of the Operating Department in New York.

Car Door Fixtures.

A joint notice has been issued by the National Railway Specialty Company, Chicago, and the Western Railway Equipment Company, St. Louis, Mo., to the effect that hereafter all door fixtures made under patents of either company will be sold by both companies. This agreement went into effect Dec. 1 and includes the following fixtures: "Security," "Dunham," "Q & C," "Interchangeable," "St. Louis" and "Western." The last two are for flush doors.

Car Lighting.

Preliminary statements of the Safety Car Heating & Lighting Co. (Pintsch Gas System) show that they have so far this year equipped 1,347 additional cars with that system of lighting. The cars equipped were ordered by 65 of the principal railroads, among which were the Atchison, Alton, Northwestern, Burlington, Rock Island, Big Four, Delaware & Hudson, Lackawanna, Erie, Grand Trunk, Illinois Central, Kansas City, Fort Scott & Memphis, Lehigh Valley, Louisville & Nashville, Missouri Pacific, Mobile & Ohio, New York Central, New York, New Haven & Hartford, Oregon R. & Navigation, Pennsylvania Co., Reading, Pullman, Seaboard Air Line, Southern Pacific, Union Pacific, Wabash, and 39 others. There are now about 150 railroads in the United States and Canada that have adopted the Pintsch System as a standard. The total number of cars

TABLE* SHOWING COMPARATIVE PERFORMANCE OF THREE LEADING PUMPING ENGINES, AND ALLIS HACKENSACK PUMP.

| | Hackensack Allis Pump. | Indianapolis Snow Pump. | Chestnut Hill Leavitt Pump. | Wildwood Nordberg Pump. |
|---|------------------------|-------------------------|-----------------------------|-------------------------|
| Diameter of pistons, inches. | 25.5x47x73 | 29x52x80 | 23.7x24.37x39 | 19.5x49.5x29.5x57.5 |
| Stroke of pistons, inches. | 42 1-16 | 60 | 72 | 42 |
| Diameter of pump plungers, inches. | 25.524 | 33 | 17.5 | 14.75 |
| Stroke of pump plungers, inches. | 42 1-16 | 60 | 48 | 42 |
| Duration of test, hours. | 24 | 8 | 24 | 36 |
| Revolutions per minute. | 30.095 | 21.46 | 50.59 | 36.52 |
| Piston speed, feet per minute. | 211 | 214.6 | 607 | 255.64 |
| Steam pressure near throttle, above atmos., lbs. | 173 | 155.6 | 175.7 | 199.87 |
| Head pumped against, feet. | 266.61 | 204.7 | 137.05 | 602.69 |
| Head pumped against, lbs. per sq. in. | 114.6 | 88.7 | 59.4 | 262.03 |
| Duty per 1,000 lbs. of dry steam at P lbs. pressure, ft.-lbs. | 168,532,800 | 167,800,000 | 157,843,400 | 149,501,426 |
| Duty per million British thermal units, ft.-lbs. | 146,403,416 | 150,100,000 | 144,490,032 | 162,132,517 |
| Plunger displacement per 24 hours, gallons. | 12,132,152 | 20,600,000 | 21,405,067 | 6,225,052 |

*The work used in calculating the duty and capacity of pumps is the product of the weight of water due to plunger displacement, by the total head equivalent to the pressure at a point in the force main near the engine, plus the height through which the water was lifted to this point.

tion from the low cylinder jacket to the sewer. This steam is supplied from the steam chest of the intermediate cylinder, and therefore does not form a part of the live steam jacket supply. The other gravity discharge pipe removes the drip from the second receiver.

The engine was erected in October, 1899. It was put into regular operation about Nov. 1, 1899, and was tested Nov. 20 and 21, 1899.

The contract required only the determination of:

1. The duty per 1,000 lbs. of dry steam consumed by engine, assuming the weight of water delivered to be that of the number of cubic feet displaced by the plungers on their inward strokes, i.e., to be 145,000,000 ft.-lbs. at a steam pressure of 175 lbs. gage.

2. The gallons of water delivered per 24 hours, assuming the volume of water delivered to be the cubic feet displaced by the plungers on their inward strokes, i.e., to be 12,000,000 at a piston speed not exceeding 217 ft. per minute.

Empty as well as loaded cars are paid for. The time allowed is one day for 46 miles or less; for greater distances, up to 124 miles, two days; and one day more for every additional 124 miles. Sundays and holidays are not counted. This would allow 8 days between New York and Chicago, besides the day for unloading. If this time is exceeded, 48 cents per car per day must be paid for the delay. The cars must be returned loaded when possible, and loads may be taken for any station on the return route; for any station on the home road or beyond it when part of the route is over the home road; and also for other stations and in other directions over any route not exceeding by more than 124 miles the route over which the car came. The car may be sent for a load to any station of the road returning it which is not more than 124 miles distant from the station to which it was consigned. Empty cars must always be returned by the route over which they came. There are heavy penalties for deviations from the routes so prescribed.

thus far equipped in this country aggregates 16,000, included in which are 2,483 Pullman cars. The company has built six new gas works this year, one at Albany, N. Y.; one at Los Angeles, Cal.; an additional one at Jersey City, making three that are now in operation there; Montreal, Memphis, Texarkana, Ark., and Hamlet, N. C. There are now in the United States and Canada 55 plants for Pintsch gas, and one is projected for the City of Mexico.

Bids Wanted for Rolling Stock for Chile.

The Board of Directors of the State Railroads of Chile will call for tenders for rolling stock as per following list and specifications: Three sleeping cars, 12 first-class passenger cars, 8 second-class passenger cars, 6 consolidated freight engines, 3 steam wrecking cranes, 100 pressed and rolled steel coal cars 24 tons capacity. The specifications may be consulted in Santiago, in Valparaiso, and in Paris and Washington at the Legations of Chile. The tenders must be accompanied by general drawings and detailed specifications. The tenders shall be presented and opened at the sitting that the Board of Directors shall hold on February 6, 1901, at 1 p. m. In the United States the 5 per cent. guarantee on the amount of the tenders may be deposited in a National Bank, to the order of the Minister of Chile to the United States, C. Morla Vicuna, 1719 De Sales street, Washington, D. C. The tenders, together with the necessary general drawings and detailed specifications should be addressed to Chile on or before the 25th of December, mail day by the way of New York, Colon, Panama, in order to be certain of reaching Santiago in time; the date fixed for the opening of tenders being the 6th of February, 1901. Forwarding by the mail leaving New York Jan. 4, 1901, would not be so certain. The lowest proportion of dead weight in relation to capacity will be specially taken into consideration.

Oiling Ballast.

The Michigan Central has sprinkled about nine miles of roadbed, near Battle Creek, Mich., with oil. The work was done as an experiment and to test the value of crude oil as a means of making the roadbed dustless.

Extensions of Block Signaling.

The New York Central & Hudson River is preparing to adopt the telegraph block system on its Pennsylvania Division, formerly the Fall Brook and the Beech Creek railroads. The principal lines of this division are from Lyons, N. Y., southward to Newberry Junction, Pa., 184 miles, and from Jersey Shore to Patton, 133 miles. For the present the block system will be introduced on only 113 miles of the last named division. Semaphore signals are to be put in at those telegraph stations which are not now provided with signals. There will be about 100 block stations altogether, and about 30 additional operators will be required.

The preparations for introducing the block system on the Belt Line of the New York Central, at Buffalo, are mentioned in another column of this issue.

On the Lehigh Valley railroad about 77 miles of block signal work is now in progress. When this work shall have been completed, the Lehigh Valley will be equipped with Hall automatic block signals all the way from Jersey City, N. J., to Manchester, N. Y., 362 miles. These signals are also in use on about 15 miles of the main line at the Buffalo end, so that only about 73 miles of the main line will be left without them.

THE SCRAP HEAP.

Notes.

Michigan papers state that the Michigan Central has sprinkled oil on its roadbed for nine miles west of Battle Creek.

A Canadian paper says that wheat has lately been carried from Parry Sound to St. John, N. B., by rail, at a rate which gives the Intercolonial Railway three cents per 100 lbs. for carriage for 720 miles. This is equal to five-sixths of a mill per ton per mile.

The agents at the junction stations on that part of the Wabash road east of the Mississippi River have an association; and this association has just held a meeting at St. Louis. The object of the association appears to be similar to that of the National Local Freight Agents' Association, partly for discussions about agents' work and partly for recreation.

The two ticket forgers who were arrested at Chicago Oct. 26, having in their possession a large number of counterfeit passes or other fraudulent transportation, were brought before the court in Chicago Nov. 27, and pleaded guilty. They were sentenced to the state prison at Joliet for an indefinite term. (This is under the Illinois indeterminate sentence law, and the imprisonment may last from one to 14 years.) It is said that the real name of "Meiers" is P. N. Van Sickle, formerly a sleeping car conductor. He has been in jail at Reading, Pa., and Brooklyn, N. Y. Mr. Donald has issued a circular giving the records of the men with portraits.

Traffic Notes.

A New York State newspaper says that the New York Central road receives about 20,000 claims annually for the redemption of tickets that have not been used; and it is said, apparently on the authority of an officer of the road, that these claims are almost all settled within one week of the time they are received. The amount of money refunded in this way annually is about \$50,000.

The Government of Mexico has established a railroad tariff revising board. This board consists of two law-

yers, a technical Railroad Inspector, an official of the Department of Communications, an official of one of the railroad companies, a member of the National Chamber of Commerce, a member of the National Agricultural Society and a secretary. Its duties will be to decide upon the reasonableness of the freight tariffs presented by the railroads which, under the law, must be revised every three years.

The Kentucky Separate-Car Law.

The Supreme Court on Dec. 3 announced its decision in a suit against the Chesapeake & Ohio concerning the statute of Kentucky requiring railroads to furnish separate cars on its trains for white and colored passengers. For failing to comply with its provisions the company was indicted, and, in defense, pleaded that the statute was unconstitutional, being a regulation by a State of interstate commerce. The State courts enforced the law's penalty against the company, and it appealed. The Supreme Court, by Justice Brown, sustains the decision of the state courts. The Supreme Court holds that the law would be fully complied with if the company should carry the separate coaches on its trains only within the limits of the State of Kentucky. The question of interstate commerce did not necessarily arise in the case, because the Court of Appeals of Kentucky had said that it would limit the application of the law to passengers traveling from one point in the state to another point in the state. Dissenting from the court, Justice Harlan said that the law, in his view, was obnoxious to the constitutional provision reserving to Congress the sole regulation of interstate commerce. And, further, because, in his opinion, no state was competent to separate its citizens into classes in public conveyances; it had no more power to require citizens of African descent to ride in separate cars than it had to require those of Irish or Italian descent so to do.

Foreign Steel Shipments via the Great Lakes.

Mention was made in our issue of Oct. 19 of the intention of the Carnegie Co. to ship steel from Conneaut, Ohio, via the Great Lakes and the St. Lawrence River to Europe. The four chartered vessels have been loaded, and are now on their way. The fourth vessel, the Paliki, cleared from Conneaut on Nov. 23, with 1,001 tons of sheet bars for Cardiff, Wales. The first to load early in the month was the Monkshaven, which has Avonmouth, Eng., for its destination. The second was the Leafield, with 1,000 tons of sheet bars for Swansea, Wales. The Theano followed, taking on 1,000 tons of sheet bars for Newport, Eng. At Quebec each vessel took an additional cargo, their capacity being about 2,500 tons each on 18-ft. draught. The vessels were the fleet of the Algoma Central Steamship Co., and were brought from Europe last summer by Mr. Clergue, of Sault Ste. Marie, Ont., and then chartered by the Carnegie Co.

New Sheet and Tube Plant for Youngstown, Ohio.

The Youngstown Sheet & Tube Co. has been chartered in Ohio, with a capital stock of \$600,000. The incorporators are E. L. Ford, Colonel Geo. D. Wick, First Vice-President of the Republic Iron & Steel Co.; George L. Fordyce, James A. Campbell and Wm. Wilkoff. The capital stock will later be increased to \$1,000,000. It is the intention of the company to build a puddle mill, with three finishing mills to make all kinds of skelp; butt and lap weld tube mills to make wrought iron pipe; also ten hot sheet mills with sufficient cold mills to finish the product. A galvanizing plant will also be built. Contracts for the buildings will be let as soon as a location is decided upon. The stockholders are mostly residents of Youngstown, and some are already interested in the iron industry in that city. Colonel Wick resigned from the Republic Iron & Steel Co. on Dec. 1.

Contracts for Repair Shop Equipment.

The Pittsburgh Coal Co. has let contracts for equipment of its new car repair shop at Montour Junction, Pa., at a cost of \$50,000, and provided for the improvement of the Montour R. R., at an additional cost of \$60,000. The contract for building the car repair plant is let to H. J. Bishop, of Pittsburgh. Manning, Maxwell & Moore will supply some of the equipment. The General Electric Co. will supply nine motors and generators. The engines will be built by the Harrisburg Foundry & Machine Co., and the boilers will be installed by the Erie Iron Works. The heating apparatus will be arranged by the U. Baird Machine Co.

Interstate Commerce Commission on the Danville Case Again.

The Interstate Commerce Commission, in an opinion by Commissioner Prouty, has announced its decision upon the petition of the Southern Railway for rehearing in the case of the City of Danville, Va., decided by the Commission against the road in February last. The Commission, in its original decision, held that freight rates between the west and Danville should not be more than 15 per cent. above the rates to Lynchburg, and that freight rates from northern and eastern cities, and rates on certain commodities from New Orleans to Danville should not exceed those to Lynchburg by more than 10 per cent. Danville is an intermediate point to Lynchburg for such traffic by the Southern Railway. The Southern claimed in its petition for rehearing that to obey the decision of the Commission would subject it to over \$26,000 loss at Danville, and by reason of necessary changes at other points, to a total loss of over \$433,000 yearly. In computing this amount the company considered that changes in rate would be rendered necessary at 312 other points. The Commission holds that a proper interpretation of its decision does not involve this result and that the changes at other points would be comparatively few in number and insignificant in amount. It says, however, that if competitive conditions should require more reductions than it is believed would follow, it would have power to prevent any oppressive or unexpected result from its order by modifying at any time the order itself.

With respect to the alleged diminution in revenue at Danville it is said that this amount is apparently reached by casting upon the Southern the entire loss from the point of origin. This was not the intent of the original order, which said that the connections of the Southern should be compelled to participate in the reductions; and the Commission declares that if those connections decline to do so and can not under the law be compelled to, the Southern will not be required to maintain the rates suggested. Attention is called to the fact that while the loss of revenue estimated to occur at Danville does not correctly show what the Southern must lose, it does nevertheless indicate what Danville is paying over and above just and lawful transportation charges. It is said that these figures fairly show that the city of Danville, with a population of only about 20,000, is paying at least \$50,000 a year more for railroad transportation than the city of Lynchburg, only 66 miles distant, would pay for the

same amount of transportation, and it concludes that under these circumstances there can be no continued competition between these cities.

Referring to the claim of the company that its \$120,000,000 of common stock paid no dividend in 1899, and that the order of the Commission would deprive the owners of the stock of their property without due process of law, the Commission says that the stock was issued as part of the reorganization scheme under which the company came into existence, and it does not appear in testimony that anything was ever paid for it. The Commission rules that something more is needed in such a case than setting up the existence and amount of capitalization; that it does not rest in the whim of a reorganization committee in Wall street to impose a tax upon that whole southern country; that the property of the railroad company should be most carefully protected, but the property of the citizens of Danville is just as sacred as are the securities of the railroad. The petition for rehearing is dismissed.

Petroleum Fuel in Roumania.

Petroleum is now extensively being used as locomotion fuel in Roumania. At the end of 1899, 175 locomotives had been converted. The consumption of petroleum on locomotives, which in 1896 only reached 2,200 tons, rose in 1899 to 15,200 tons, whilst that of lignite rose from 17,200 tons to 67,000 tons in the corresponding period. In order to provide the locomotives with petroleum, reservoirs of 100 to 200 tons capacity have been built at half a dozen places.

The State Purchase of Swiss Railroads.

It is reported from Switzerland that a syndicate of American, English, French, German and Swiss financial institutions has been formed under the leadership of Dr. Siemens, President of the German Imperial Bank, to take an issue of 300,000,000 francs of Swiss 4 per cent. bonds, issued to pay for the railroads which the Confederation is to buy. When the purchase was resolved upon money could be had for 3½ per cent. or less, but it is dearer now, because times are better. This issue is for a single one of the five roads, which is to be taken in advance of the time when it can be condemned, by agreement between the company and the government.

Michigan Appraisal for Specific Taxes.

Nov. 23, p. 781, we printed a note about the work of appraising properties paying specific taxes. The following further information is from a letter just received from Prof. M. E. Cooley, University of Michigan, who is Appraiser of these properties:

"We started, Sept. 1, the appraisal of all railroad properties in this state; also telephone, telegraph, plank road, river improvement and express companies. We have about 90 men in our employ, most of them engineers. By the end of next week we shall have made a personal inspection of every mile of railroad in Michigan, nearly all of 9,000 locomotives, 30,000 out of 50,000 freight cars, all of the passenger equipment, shops and machinery, buildings, etc. We shall also have inspected all of the telephone and telegraph lines and the offices and central stations in the state. All of the 200 plank roads and 90 or 100 river improvements will have been looked up."

The London Terminus of the Great Central.

The London freight and passenger terminals of the Great Central Railway, which extended its line from the north of England into the metropolis two years ago, cover an area of 50 acres. A description of this great establishment was given before the Institution of Civil Engineers, November 13, by Messrs. G. A. Hobson and Edmund Wragge. Upwards of a thousand dwelling houses and nearly two miles of streets had to be demolished to make room for the new works, and new model dwellings, to accommodate 2,690 persons, were built elsewhere to take the place of those destroyed. For 43 miles the Great Central line runs over the Metropolitan Railway and six miles of this had to be widened. More than a mile is underground. At one point, where freight cars have to be switched, there are seven tracks under cover. One bridge in the approach, that crossing Regent Canal, carries 14 tracks. The freight house at this terminal has five floors and has 8½ million cubic feet of space. The walls of this building are of brick, but the frame is of steel, weighing 7,000 tons. Of the 90 columns 72 carry 700 tons each. By means of concrete foundations suitably spread, which themselves weigh 100 tons to the column, the pressure on the clay foundation is reduced to three tons per square foot. Over four acres of the freight yard is devoted to a coal depot. The passenger station is at Marylebone and covers seven acres. The foundations are designed for additional upper floors, when these are needed. The platforms are nearly 1,000 ft. long. The promenade between the buildings and the platforms is 300 ft. x 100 ft. There is room to enlarge the passenger station to cover 11 acres.

A Canal Between Vienna and Trieste.

We are told that Mr. Wagenführer, of Vienna, Austria, has a concession from the Austrian Government for the construction of a canal to start from the Danube, a short distance from Vienna, and go to the Adriatic. The starting point of the Canal on the Danube is at an altitude of 618 ft. The canal would ascend to 3,039 ft., crossing the Semmering, then take a direction towards Trieste, almost following in a parallel route the line of the Vienna-Trieste Railroad. The total length of the canal would be 318 miles. Its cost is estimated at \$120,000,000. Mr. Karl Wagenführer, to whom the concession is said to have been granted, is a hydraulic architect and contractor, and has his headquarters at 4 Mayerhof, Vienna. How insignificant are the plans of our own deep waterways men as compared with this!

Locomotive Boilers for Karlsruhe.

The administration of the Baden State Railroads (Grossherzogliche General Direction der Badischen Staatseisenbahnen, Haupt-Maschinenwerkstätte, Karlsruhe) is in the market for 19 locomotive boilers. Offers should reach the authorities no later than Dec. 15, 1900. Though it may be too late for American manufacturers to compete for this order, yet it might be well to approach the above administration, as we understand that additional orders will be placed.

Belgian Car Exports.

Probably no other country on the European Continent is doing such a large foreign trade in cars as Belgium, where some large works make car building a specialty. In 1899 the exports of Belgian-made railroad and street cars amounted in value to 58,803,954 francs, or about \$11,500,000, whilst the imports of cars into Belgium were valued at only \$596,000. The exports went to almost all parts of the globe, the principal buyers having been Italy, with \$2,040,000; Switzerland, \$1,738,000; Egypt, \$1,600,000; France, \$1,520,000; Spain, \$1,160,000; Ger-

many, \$1,162,000; Russia, \$558,000; Holland, \$550,000; China, \$424,000. Smaller quantities were shipped to Luxemburg, the Dutch East Indies, Austria, Natal, Sweden, Siam, Argentina, Japan, Great Britain, Cape Colony, Brazil, Denmark, Norway, Greece, Mexico, Roumania, Central America, Tunis, Peru, Algeria, British India, Australia, etc.

Traffic on German Canals.

Consul Hughes, of Coburg, sends the following: The Kaiser Wilhelm Canal has been used in the fiscal year 1899-1900 by 26,279 toll-paying vessels with a total of 3,488,767 tons (register) net, being 463 vessels and 370,927 tons more than last year. The above number includes 11,277 steamships of 2,748,918 tons, 13,248 sailing vessels of 492,121 tons, and 1,754 barges and scows of 247,728 tons. Eighty-five and eight one-hundredths per cent. of all the vessels, with 65.11 per cent. of the total tonnage, were under the German flag. The following shows the nationalities of other boats:

| | 1899-1900. Per cent. | 1898-99. Per cent. |
|-------------------|-------------------------|-----------------------|
| British | 10.33 | 9.71 |
| Danish | 7.93 | 6.88 |
| Swedish | 6.71 | 5.27 |
| Russian | 3.06 | 2.29 |
| Norwegian | 2.96 | 3.59 |
| Dutch | 2.95 | 3.41 |
| Belgian | 0.40 | 0.37 |
| French | 0.07 | 0.03 |
| Other flags | 0.48 | 0.24 |

On Oct. 23, Mr. Hughes states that when the Elbe-Trade Canal was opened last June it was predicted that it would not pay expenses, but the traffic has exceeded expectations, and the city of Lübeck must provide improved landing piers to accommodate the increased business.

The great Rhine-Elbe Canal scheme is buried for the time, owing to the opposition of the Agrarians; but the plan is not dead. Meanwhile, South Germany will have a chance of agitating for the realization of an old project—the Danube-Main Canal. There is canal connection at present, but very crude.

Technical Schools.

University of Illinois.—The thesis subjects approved for the present senior class of the University of Illinois include many pertaining to railroad engineering. These are as follows:

Architectural Engineering. A train shed with cantilever hinged trusses.

Civil Engineering. Design for a train shed; design for a cantilever bridge; design for a rolling bascule bridge; design for an interlocking plant at Champaign, Ill.; study of railroad terminals and a design for a railroad freight house.

Mechanical Engineering. Explosive properties of gas and gasoline vapor mixtures; comparison of reducing motions for indicators; dynamometer car tests; water rates of steam engines; transmission of heat through boiler tubes when coated with scale; design and construction of a gasoline engine; pneumatic tools; compressed air; water supply for locomotives.

The Tunnel from Spain to Morocco.

We recently mentioned the fact that the ancient project of a tunnel connecting the shores of Spain with Northern Africa had been revived by a French engineer. A report from a United States Consul, just received, gives a few further particulars which appear below. With the publication of these we may probably dismiss the matter for a few years until somebody else again brings it up. "Mr. Berlier believes that the construction of a submarine tunnel from Vaqueros Bay, in Spain, to Tangier, in Morocco, is perfectly feasible, as the depth of the sea in this vicinity does not exceed 400 meters. The submarine length of the tunnel would be 32 kilometers, the entire length being 41 kilometers, and the maximum grade 25 feet per 100. It is proposed to establish railroad connection in Europe by means of a line following the Spanish coast and passing through Tarifa and Algeciras. In Morocco a line would be constructed from Tangier to Ceuta, Tetuan, Melilla, and Remours, connecting with the Algerian railroad system at Tlemcen. Mr. Berlier is convinced that in building the tunnel sufficiently wide for two tracks, no greater obstacles will be encountered than those at Mont Cenis, the St. Gotthard, Arlberg, and the Simplon."

Switzerland's Trade in Rolling Stock in 1899.

During the year 1899 Switzerland imported six locomotives valued at 76,440 francs, as against six locomotives valued at 131,000 francs in 1898. Five engines, valued at 60,900 francs came from Germany, and one engine, valued at 16,540 francs, from Belgium. The exports of locomotives amounted to 19 engines, valued at 977,680 francs, as against 32 engines, valued at 1,439,617 francs in 1898. Of the exports of the year 1899, four engines went to East Africa, four to Japan, four to Belgium, four to France, and three to Scandinavia.

The imports of passenger cars for standard roads amounted in value to 32,356 francs, almost all from Germany, whilst the imports of passenger cars for narrow gauge railroads and tramways amounted in value to 37,925 francs. The exports of passenger cars amounted to 6,125 francs. Freight cars for standard gauge were imported to the value of 2,283,244 francs, of which 2,245,829 francs worth came from Belgium. Our share amounted to one car valued at 300 francs. The imports from Belgium consisted of 694 cars. Freight cars for narrow gauge and other railroads were imported to the value of 165,949 francs, chiefly from Germany, France and Austria.

The Isthmian Canal.

The following is the President's reference to the Isthmian Canal in his message:

"The all-important matter of an interoceanic canal has assumed a new phase. Adhering to its refusal to reopen the question of the forfeiture of the contract of the Maritime Canal Company, which was terminated for alleged non-execution in October, 1899, the Government of Nicaragua has since supplemented that action by declaring the so-styled Eyre-Cragin option void for non-payment of the stipulated advance. Protests in relation to these acts have been filed in the State Department and are under consideration. Deeming itself relieved from existing engagements, the Nicaraguan Government shows a disposition to deal freely with the canal question either in the way of negotiations with the United States or by taking measures to promote the waterway.

"Overtures for a convention to effect the building of a canal under the auspices of the United States are under consideration. In the meantime, the views of the Congress upon the general subject, in the light of the report of the commission appointed to examine the comparative merits of the various trans-Isthmian ship canal projects, may be awaited.

"I commend to the early attention of the Senate the convention with Great Britain to facilitate the construc-

tion of such a canal and to remove any objection which might arise out of the convention commonly called the Clayton-Bulwer Treaty."

Great Year for Colorado Railroads.

This has been a rare year for Colorado railroads. In the first place they escaped the usual summer washouts which in nine seasons out of ten tear their tracks all to pieces. In the second place the State Board of Equalization knocked more than \$9,000,000 off of their assessments. Thirdly, their freight and passenger business has exceeded anything in previous history. With all this fine luck the railroads ought to be willing to do the handsome thing by the state. They ought to make a rate across the plains that would allow the holding of the Grand Army reunion and other conventions in Colorado. . . . They ought to be willing to build more viaducts over their highway crossings. . . . —*Pueblo Chieftain.*

Disastrous Collision in Mexico.

A press despatch from San Antonio, Tex., says that in a butting collision between a freight train and a work train on the Mexican Central, Nov. 29, near Symon, 20 men were killed and 60 injured. Two American trainmen had to flee to avoid being lynched. Three engines and 40 cars were piled up in the wreck.

Imprisonment of Trainmen in Mexico.

Press despatches from Nogales, Ariz., Nov. 27, report that the engineers on the Sonora Division of the Southern Pacific have struck; or rather have refused to work until their comrades, now confined in Mexican prisons, are released. As has been the case for years, the Mexican authorities always arrest the engineers, and any other person whom they may think is responsible, whenever a person is killed by a train, even in the case of tramps or wayfarers whose own negligence is plain; and as a result of this method of administering the law, nine or more engineers, conductors and brakemen are now in prison at various points; and the railroad company's lawyers have tried in vain for months to have the accused persons brought to trial.

An Intercolonial Arbitration.

The news comes from New York that Mr. Roberts, General Passenger Agent of the Erie Railroad, has given his decision as arbitrator in the controversy between the Intercolonial & Prince Edward Island Railway of Canada, and the rail lines between St. John, N. B., and Boston, the Canadian Pacific, the Maine Central and the Boston & Maine. The case hinges on a question of the division or apportionment of rates between New England and Prince Edward Island and points on the Intercolonial. —*Montreal Gazette.*

New Railroad Service Between Moscow and Baku.

Vice Consul Smith writes from Moscow, Nov. 6, that a special express train running between Moscow and Baku made its first trip on Oct. 28 last, leaving per the Moscow-Kasan R. R. station. The train consists of one first-class car, two second-class cars, and one baggage car. These cars are built according to the most recent models, on Pullman trucks, and are fitted with the latest improvements. They are of Russian make, and were built at the shops of the Vladikavkaz R. R. Special attention has been given to the comfort of the passengers. The average speed of this train will be 58 versts (40 miles) per hour.

Improvements on the Atchison.

A press despatch from Chicago, evidently based on information given by an officer of the road, says that the Atchison, Topeka & Santa Fe is to lay 80-lb. rails throughout its line between Pueblo and Denver, 117 miles, and that the block system will be introduced on this line. The Atchison Line between these cities is used by the trains of the Colorado & Southern, making a heavy traffic. The line is single track. It is also stated that the Atchison lines west of Albuquerque, N. Mex., will be extensively improved next year. The Santa Fe Pacific will ballast fifty miles of track with volcanic cinders. It is also proposed to build 52 stone arches over waterways, to cost \$75,000. There will also be six short bridges, to cost \$35,000. A large yard at Barstow, Cal., is to cost \$75,000. A steel bridge over the river at Los Angeles is also to be erected, at a cost of \$105,000, and for the construction of concrete arches at numerous points there will be spent \$208,000 for the new line to San Francisco, and \$75,000 will be spent in betterments on the terminal facilities at San Francisco.

Boiler Explosions.

An explosion of the boiler in the power house near the Chicago & Northwestern passenger station in Chicago on the evening of Dec. 3 killed five employees of the road and injured 12 other persons. The power house was west of the passenger station on the north side of the yard. It contained four boilers and nine dynamos, with the engines. An express train was passing the power house at the moment of the explosion and the cars were considerably damaged. A sleeping car and a parlor car were badly damaged and four passengers were injured. The destruction of the dynamos left the station in darkness.

The boiler in the pump house of the Southern Railway at Somers, Va., exploded on the night of Nov. 29, killing the man in charge.

LOCOMOTIVE BUILDING.

The Missouri Pacific, it is reported, will order about 25 locomotives.

The Grand Trunk is having six engines built by the Brooks Locomotive Works.

The Chilean State Railroads, it is stated, will ask bids on six freight locomotives.

The Georgia Railroad is having two engines built by the Baldwin Locomotive Works.

The Pennsylvania Railroad is having 10 engines built by the Baldwin Locomotive Works.

The Quebec & Lake St. John is having one engine built by the Baldwin Locomotive Works.

The Michigan Central is having eight locomotives built by the Schenectady Locomotive Works.

The Missouri, Kansas & Texas denies the report that it is in the market for new locomotives.

The Rio Grande Western has ordered two locomotives from the Schenectady Locomotive Works.

The Pittsburgh & Castle Shannon is having one engine built by the Pittsburgh Locomotive Works.

The Kanawha & Michigan has ordered five freight engines from the Baldwin Locomotive Works.

The Toledo & Ohio Central has ordered three switching engines from the Brooks Locomotive Works.

The Great Northern of Canada has ordered four locomotives from the Brooks Locomotive Works.

The Chicago & Great Western has ordered 10 consolidation engines from the International Power Co.

The Atchison, Topeka & Santa Fe has ordered 32 passenger engines from the International Power Co.

The New York, Ontario & Western is having six engines built by the Cooke Locomotive & Machine Co.

The Intercolonial has ordered six more 10-wheel passenger engines from the Dickson Locomotive Works.

The West Virginia Central & Pittsburgh has ordered four locomotives from the Baldwin Locomotive Works.

The Minneapolis & St. Louis has ordered four passenger locomotives from the Schenectady Locomotive Works.

The Philadelphia & Reading has ordered 10 passenger and 35 heavy freight engines from the Baldwin Locomotive Works.

The Northern Pacific has ordered from the Schenectady Locomotive Works 50 locomotives, with an option on an increase in the number.

It is reported that the Cleveland, Cincinnati, Chicago & St. Louis has ordered 10 consolidation engines from the Schenectady Locomotive Works.

The Blackwell, Enid & Southwestern, now building, will be in the market after Jan. 1 for some motive power. Address Ed. L. Peckham, General Manager, Blackwell, Okla. T.

The Swedish State Railroads, according to a recent issue of the *Jernbanebladet* (a railroad journal published in Sweden), have decided, owing to the satisfactory performance of the 20-in. and 31-in. x 24-in. two-cylinder compound 10-wheel freight engines, recently built by the Richmond Locomotive Works, to adopt the Richmond system of compounding and has ordered 29 engines of that type to be built at its own shops.

The Chesapeake & Ohio is having one simple 10-wheel engine built by the Baldwin Locomotive Works and three eight-wheel simple engines built by the Schenectady Locomotive Works. The former is to be delivered in March and the latter in January and February. The Baldwin engine will weigh 170,600 lbs., with 124,100 lbs. on the driving wheels and have 22-in. x 28-in. cylinders; 72-in. driving wheels; extended wagon top boilers with 360 charcoal iron lap welded tubes 2 in. in diam. and 15 ft. long, and a working steam pressure of 360 lbs.; fire-boxes, 121½ in. long and 41 in. wide; and a tender capacity for 6,000 gals. of water and eight tons of coal. The Schenectady engine will weigh, in working order (engine and tender) 248,300 lbs., with 88,000 lbs. on the driving wheels and have 20-in. x 26-in. cylinders; 72-in. driving wheels; extended wagon top boilers with 342 charcoal iron lap welded tubes 2 in. in diam. and 12 ft. 10 in. long, and a steam pressure of 200 lbs.; fire-boxes, 112 3-16 in. long and 40½ in. wide, of Carbon steel; and a tender capacity for 6,000 gals. of water and 10 tons of coal. All the engines will be equipped with Westinghouse brakes, Gollmar bell ringers, Corning brake-shoes, C. & O. standard automatic couplers, Pyle-National headlights, Hancock inspirators, U. S. Metallic piston and valve rod packings, Leach sanding devices, Michigan lubricators and Crosby steam gages. The Baldwin engine will have Crosby safety valves and Standard driving, truck and tender wheels; the Schenectady engines will have Sterlingworth brake-beams, Ashton safety valves and Latrobe driving wheel tires.

CAR BUILDING.

The Hocking Valley is in the market for about 2,500 cars.

The Lake Superior & Ishpeming is in the market for 100 flat cars.

The American Car & Foundry Co. is building one tank car for Mexico.

The Michigan Central will build 10 passenger coaches at its own shops.

The Algoma Central, it is reported, is in the market for 100 flat cars.

The Craig Oil Co., Toledo, is having 12 cars built by the Erie Car Works.

The Cleveland Refining Co. is having four cars built by the Erie Car Works.

The Ohio Southern has ordered 100 freight cars from the Pressed Steel Car Co.

The Northern Pacific will build a number of refrigerator cars in its own shops.

The St. Louis & San Francisco is in the market for from 20 to 30 passenger cars.

Crew Lerick Co., of Philadelphia, are having 10 cars built by the Erie Car Works.

The Philadelphia & Reading is reported in the market for 50 cars for passenger service.

The Somerset Railroad has ordered 100 box cars from the American Car & Foundry Co.

The Southern Pacific has ordered 200 stock cars from the American Car & Foundry Co.

Nelson Morris & Co. have ordered 100 refrigerator cars from the Illinois Car & Equipment Co.

Swift and Company have ordered 200 refrigerator cars from the American Car & Foundry Co.

The Cincinnati, New Orleans & Texas Pacific is having 600 cars built by the Pressed Steel Car Co.

The Chesapeake & Ohio has placed a small order for flat cars with the American Car & Foundry Co.

The Illinois Central, as reported in our issue of Nov. 16, is having 500 cars built by Haskell & Barker.

The Cincinnati, Hamilton & Dayton will build, at its Lima shops, 100 flat cars of 70,000 lbs. capacity.

The Chilian State Railroads, it is stated, will call for bids on 23 passenger cars and 100 steel coal cars.

The Rodger Ballast Car Co. has ordered 20 ballast and one plow car from the American Car & Foundry Co.

The St. Louis & San Francisco has ordered three furniture cars from the American Car & Foundry Co.

The Atchison, Topeka & Santa Fe has ordered one refrigerator car from the American Car & Foundry Co.

The Shreveport & Red River Valley has ordered six combination and three baggage cars from the Pullman Company.

The Northwestern Elevated of Chicago has ordered five motor and 25 passenger cars from the American Car & Foundry Co.

The Delaware, Laskawanna & Western advises us that it is not arranging to build any new passenger cars, as has been reported.

The Atlantic Coast Line is reported to have ordered 300 box cars from the Southern Car & Foundry Co., to be built at Lenoir City.

The Lake Shore & Michigan Southern has ordered 1,000 box cars of 80,000 lbs. capacity and 200 furniture cars from Haskell & Barker.

The Rio Grande Western has ordered 50 stock cars from the American Car & Foundry Co., in addition to the 100 box referred to last week.

The Blackwell, Enid & Southwestern will be in the market after Jan. 1 for some rolling stock. Address Ed. L. Peckham, General Manager, Blackwell, Okla. T.

The Cleveland, Cincinnati, Chicago & St. Louis has ordered 1,500 box cars from the Pullman Co., and, it is reported, 700 coal cars and 300 box cars from the American Car & Foundry Co.

The Pennsylvania has ordered 1,000 steel flat cars from the Pressed Steel Car Co., making 4,000 cars in all ordered recently from that company by the Pennsylvania. The road has also ordered 125 cars from the Barney & Smith Car Co.

The New York, Ontario & Western has ordered 475 coal cars, of 80,000 lbs. capacity, from the American Car & Foundry Co. They will measure 36 ft. long, 8 ft. 6 in. wide inside, and 8 ft. 6 in. high from top of rail. The specifications call for Simplex bolsters, Sterlingworth brake-beams, Corning brake-shoes, Westinghouse brakes, Gould couplers and Gould and McCord journal boxes.

BRIDGE BUILDING.

ASTORIA, ORE.—Bids will be received by the County Court until Dec. 5 for a drawbridge across Tucker creek.

ATLANTA, GA.—The following bids were reported received Nov. 26 for the Whitehall street viaduct, less the cost of the 90-ft. span to be paid by the railroads: Grant Wilkins, Atlanta, \$39,000; Alabama Bridge Co., \$46,024.40; Penn. Bridge Co., \$43,849.40; Bruckett Bridge Co., \$42,839.40; Youngstown Bridge Co., \$46,899.40; Virginia Coal & Iron Co., \$41,299.40. The total bid of Grant Wilkins is \$54,800, or \$15,800 for the 90-ft. span.

AUGUSTA, MONT.—Bids will be received by E. Beach, Chairman County Commissioners, Helena, Mont., until Dec. 18, for a steel bridge across DuBray creek and a steel bridge across Smith creek, being five and seven miles respectively from the town of Augusta.

BALTIMORE, MD.—The Baltimore and Lehigh R. R. will soon let contracts for three steel bridges.

BEVERLY, N. J.—The Phillipsburg Horse Car R. R. will replace the county bridge in Lapatcong Township with a steel structure to accommodate the trolley tracks. Wm. M. Davis, of Phillipsburg, is President.

CANTON, N. Y.—The County Supervisors of St. Lawrence County, have authorized an issue of \$13,000 bonds for bridges.

CHATTANOOGA, TENN.—The Board of Public Works is considering the advisability of repairing the Oak street bridge over the Southern Ry. The Chattanooga Electric Ry. Co. offers to pay half of the cost. The City Engineer is making plans and estimates.

CHICAGO, ILL.—The Board of Trustees of the Sanitary District of Chicago, want separate bids until Jan. 16, 12 o'clock noon, for the substructure and superstructure of five bridges as follows: At Ashland avenue, across the Chicago River, a Page bascule bridge. At Harrison street across the Chicago River, a Scherzer rolling-lift-bridge. At Main street across the Chicago River, a Scherzer rolling-lift-bridge. At Canal street across the Chicago River, a Scherzer rolling-lift-bridge. At California avenue across the main channel of the drainage canal, contract section "O," swing bridge, design prepared by the Sanitary District of Chicago. Wm. Boldenweck, President of the Board; A. R. Porter, Clerk, 1110 Security Bldg., Chicago.

The Scherzer Lift Bridge Co., Monadnock Block, has made plans for rolling-lift-bridges to be built at Canal, Main and Harrison streets, and is now making plans for the same kind of bridges to cross the Chicago River at Randolph, State, Polk and Eighteenth streets. Each bridge will leave a clear channel of 140 ft.

DENTON, MD.—The Caroline County Commissioners, according to report, are considering plans for a new bridge over the Choptank River.

DULUTH, MINN.—Plans are being formulated to have the proposed suspended bridge built over the ship canal. The bridge was described and illustrated in the *Railroad Gazette*, Jan. 26, p. 52. The structure will consist of two steel piers about 192 ft. high, connected by trussed girders, from which will hang, close to the water on steel cables, a car, which will move back and forth across the canal by means of an electric motor. The steel girders or bridge from which the car is suspended will be about 140 ft. from the water. The car itself will be about 30 ft. in length and accommodate both teams and foot passengers.

FREDERICTON, N. B.—The Commissioner of Public Works wants bids for rebuilding the Three Brooks bridge on the Doylas Valley road; also for rebuilding the James Brook bridge on Dundas Valley road, Queens County.

HARRISBURG, PA.—The Market street subway bill has been signed by the mayor.

HENDERSON, ORE.—The Southern Pacific Co. will bridge the Willamette River on an extension reported in our Railroad Construction column.

KENOSHA, WIS.—The Common Council has been considering plans made by the Kenosha Street Ry. for a bridge at Main street.

LYONSDALE, N. Y.—Permission is granted this town, according to report, to issue bonds to the amount of \$10,000 for bridge purposes.

MONTESANO, WASH.—Bids are wanted, Jan. 7, for a bridge over Chehalis River, the main span of which will

be 210 ft. There will be 1,600 ft. of approach on steel cylinder piers, filled with concrete. J. A. Sells, County Auditor; E. G. Hunt, County Surveyor.

NORTH ADAMS, MASS.—Bids are wanted, until noon, of Dec. 11, for a plate girder highway bridge at Eagle street. Address J. L. Temple, Commissioner of Public Works.

OAKLAND, CAL.—Reports state that the Council has made an appropriation of \$18,000 for the proposed bridge on Commerce street.

OIL CITY, PA.—The Citizen's Traction Co. has contracts to let, on Dec. 8, for some bridge work. D. J. Gary, President.

PITTSBURGH, PA.—Some new bridges will be built at once, according to report, on the Buffalo & Pittsburgh line of the Pennsylvania.

Plans and specifications are reported made for a new bridge for the Pittsburgh, Fort Wayne & Chicago R. R. across the Allegheny River at Eleventh street. The old bridge will not be rebuilt. The new structure will be double deck with four tracks. The upper tracks will be for passenger trains to run over elevated tracks into the new union station. The lower tracks will be for freight service. The new bridge will have four piers. The main span will be about 320 ft.

Three spans of the 300 ft. temporary bridge of the Pittsburgh & Lake Erie R. R., to Neville Island, collapsed Nov. 26.

PROVIDENCE, R. I.—Plans for abolishing the grade crossing of Acorn street by the New York, New Haven & Hartford were submitted at a recent meeting of city and railroad officials. The plans provide for closing Acorn street and building a bridge on the line with Tefft street.

STILLWATER, MINN.—According to report, the City Council is considering building a bridge over the St. Croix River between Stillwater and Houlton, Wis., at a cost of about \$150,000.

TORONTO, ONT.—The City Council is asked to build a large viaduct over Lansdowne avenue, instead of a subway as previously proposed.

WASHINGTON, PA.—The County Court has confirmed and approved reports of viewers on four bridges.

WINNIPEG, MAN.—The Canadian Pacific has let a contract to the Dominion Bridge Co., of Montreal, for the superstructure of a steel bridge, 750 ft. long, over the Red River at Winnipeg. We are officially informed that bids are wanted by the Chief Engineer on Dec. 15 for the foundations. The total estimated cost is \$160,000.

It is understood that Mackenzie & Mann, of Toronto, Ont., are receiving bids for the Interprovincial bridge across the Rainy River at the junction of the Beaudette.

Other Structures.

BLACKFOOT, IDAHO.—Fire, on Nov. 27, destroyed the Great Northern round-house, a rotary snow plow and other property, causing a loss of about \$200,000.

BRECKINRIDGE, PA.—The Allegheny Steel & Iron Co. will build a steel plant at this place and has contracted for the buildings with the American Bridge Co. The buildings include two producer sheds, a boiler-house, a main building, an open-hearth building and a crane run way. The main building will be 72 ft. x 252 ft., with four lean-tos. The open-hearth building will be 72 x 161 ft., with three lean-tos. About 500 tons of steel will be required.

BROOKLYN, N. Y.—The Ridgewood power-house of the Brooklyn Rapid Transit Co., in Wyckoff avenue, between Madison street and Putnam avenue, was burned Dec. 4. The building was of brick, 38 ft. high and had a frontage of 125 ft. and a depth of 100 ft. There were in it three 750-h.p. engines and eight boilers.

CEDAR RAPIDS, IOWA.—We are informed that the Illinois Central R. R. contemplates building a new freight station in Cedar Rapids next year, but no plans have been made.

DANVILLE, ILL.—Jos. Ramsey, Jr., Vice-President and General Manager of the Wabash, in a letter to the Chamber of Commerce of Danville, states that the new depot for East Main street, Danville, will probably be built next summer.

FORT WAYNE, IND.—The Fort Wayne Electric Works wants bids, according to report, for its new building, which will be of steel construction. J. J. Wood, General Manager.

FRANKFORT, IND.—The Toledo, St. Louis & Western has let a contract for a new station at Frankfort to W. H. Morris, of Indianapolis.

HARRISBURG, PA.—Enoch Stanford, heretofore General Manager of the Lalanc & Grosjean Manufacturing Company's tin mills at Harrisburg, with others, proposes to build a tin plate plant in the southern part of Harrisburg.

HARVEY, ILL.—Plans have been made for a large addition to the plant of the Buda Foundry & Machine Co., of 917 Monadnock Block, Chicago. The building will be 100 x 200 ft., and will cost, exclusive of equipment, \$20,000.

JERSEY CITY, N. J.—The Lehigh Valley R. R. has let a contract to Holmes & Cogan, of Greenville, Jersey City, for a grain elevator at Caven Point.

NEW ORLEANS, LA.—The Louisville & Nashville is preparing to rebuild its station at the head of Canal street, and to make improvements on the river front. The plans and specifications may be seen at the Mechanics, Dealers and Lumbermen's Exchange.

PROVIDENCE, R. I.—The Providence Dock & Warehouse Co. will build a large dock and warehouse on the west side of Providence Harbor. Among those interested in this recently incorporated company is Leslie C. Hillard, of Providence.

ROCKVILLE CENTER, N. Y.—Arrangements have been made by the Long Island R. R. to build new passenger stations at Rockville Center and Sayville, on the Montauk Division. Each will cost about \$10,000.

SAN ANTONIO, TEX.—The contract will soon be let for a new passenger depot at San Antonio, Tex., to be used jointly by the Southern Pacific and the Missouri, Kansas & Texas railroads. The cost of the proposed structure will be about \$48,000. The extension of the M., K. & T. from San Marcos to San Antonio will be finished about April 25.

SAVANNAH, GA.—The plans made by F. P. Milburn, of Charlotte, for the granite and brick union station to be built by the Plant System, Seaboard Air Line and

Southern Ry., in Savannah, have been accepted by the joint railroads. The estimated cost is about \$250,000.

WILLMAR, MINN.—The New London Milling Co., of this place, which owns grain elevators, flour warehouses and lumber yards along the Willmar & Sioux Falls line of the Great Northern, is making arrangements to build six or more elevators, each to cost several hundred thousand dollars. W. P. Pinney is Secretary and Treasurer of the company.

MEETINGS AND ANNOUNCEMENTS.

(For dates of conventions and regular meetings of railroad associations and engineering societies see advertising page xi.)

American Institute of Electrical Engineers.

At the 148th meeting of the Institute, held at New York and Chicago, Nov. 23, a paper was presented by Mr. B. A. Behrend, of Erie, Pa., "On the Mechanical Forces in Dynamos Caused by Magnetic Attraction." The author exhibited a few lantern slides of the machines from which the data in his paper was derived, also a very excellent portrait of Neimholtz. A paper was also presented by Mr. Henry Floy, of New York City, on "The Plant of the St. Croix Power Company of Wisconsin." The papers were discussed at New York by Messrs. Behrend, Billberg, Dunn, Henshaw, Hering, Mailloux, Pope, Rice, Sheldon, Thompson, Wheeler and Wolcott.

American Society of Civil Engineers.

At the regular meeting held Wednesday evening, Dec. 5, the paper presented was by Mr. E. Schmitt, Associate Member of the Society, on "A Direct Method of Spacing Rivets and Finding the Position of Stiffeners in Plate Girders." This paper is printed in the November issue of the *Proceedings* of the Society. In the same issue is a paper by Mr. C. R. Grimm, Member of the Society, on "The Kinzua Viaduct," which structure was described in the last issue of the *Railroad Gazette*.

The Forty-eighth Annual Meeting will be held at the House of the Society, No. 220 West 57th street, New York, on Wednesday and Thursday, Jan. 16 and 17, 1901. The business meeting will be called to order at 10 o'clock on Wednesday morning. The annual reports will be read, officers for the ensuing year elected, members of the Nominating Committee appointed, amendment to the Constitution considered, and other business transacted. The arrangements for excursions and entertainments will be announced later.

PERSONAL.

(For other personal mention see Elections and Appointments.)

—Mr. August H. Schroeder, Jr., Vice-President of the Schroeder Headlight Company, of Evansville, Ind., died at his home, 505 Garfield ave., Evansville, on Oct. 19. Mr. Schroeder's death was due to an explosion of acetylene gas about a month ago when he was making experiments. He was 27 years old.

—Mr. George E. Dunklee, General Superintendent of the Dansville & Mt. Morris, at Dansville, N. Y., was born in 1865. He began railroad work in the Train Dispatcher's office of the Erie in 1885, and continued with that company until 1899, when he was made General Freight and Passenger Agent of his present company. His appointment of General Superintendent took effect Oct. 18 last.

—Mr. Almet E. Reed, Superintendent of the Altoona Division of the Pennsylvania, died Monday, Nov. 26. He was born Oct. 15, 1855, at Brooklyn, N. Y., and was graduated from the Brooklyn Polytechnic College. He entered railroad service in 1875 as rodman on the Pennsylvania, later becoming Assistant Supervisor, then Supervisor, and in 1881 Assistant Engineer. In Jan., 1893, Mr. Reed became Division Superintendent.

—Mr. James J. Fletcher, Traffic Manager of the Kansas City, Fort Scott & Memphis, died Dec. 2, of Bright's disease. He was born at Cambridge City, Ind., Nov. 13, 1848, and began his railroad service as clerk in the local freight office of the Chicago, Columbus & Indiana Central. In 1889 he became General Freight and Passenger Agent of the Cairo Division of the Cleveland, Cincinnati, Chicago & St. Louis, and in 1892, General Freight Agent of the Kansas City, Fort Scott & Memphis.

—Mr. Thomas S. Stevens, who for the last nine years has been with the Union Switch & Signal Company, in the construction department, has been appointed Signal Engineer of the Atchison, Topeka & Santa Fe, to succeed Mr. Hobson, whose resignation was recently noted in this column. Mr. Stevens is a graduate of an English school. Before going to the signal company he was in the engineering department of the Burlington road.

—Mr. Isaac Anderson died Nov. 17. He was born Oct. 22, 1854, at Canton, Mass. After receiving a common school education he entered railroad service in 1877 as clerk in the office of the Division Superintendent of the Mississippi Central. Mr. Anderson became Auditor of Disbursements of the Illinois Central in Jan., 1890, and two years later also Auditor of the Yazoo & Mississippi Valley.

—Mr. Parker Spofford, of Bucksport, Me., has been appointed Railroad Commissioner of that state, succeeding Hon. Frederic Danforth. Mr. Spofford is 58 years old, and has had extensive experience as a railroad engineer and builder. He was graduated from the scientific department of Dartmouth College in 1865, and soon after went to Missouri, where he was engaged in the location and construction of the Burlington & Missouri River and other railroads. In 1872 he returned to Maine, and since has been engaged in either engineering or construction work of a number of railroads in that state. On the Portland & Rumford Falls he was one of the contractors. Mr. Spofford was born in Bucksport, and is now the leading citizen of that town. He has been a member of the Legislature and also of the Governor's Council.

—Mr. J. C. Ford in November last had his title changed from Superintendent of the Pacific Coast Co. at Seattle, Wash., to that of Assistant General Manager. Mr. Ford was born Jan. 1, 1860, on a farm near Henry, Marshall County, Ill. He entered railroad service in 1874 as a messenger boy for the Chicago, Burlington & Quincy at Chariton, Iowa. He served until 1884, chiefly as telegraph operator and clerk for that company, the Central Branch of the Union Pacific, the Atchison, Topeka & Santa Fe, the Denver & Rio Grande, the Colorado Springs and for the Western Union Telegraph Co. From 1884 to September, 1889,

he was Stock Claim Agent and Chief Clerk in the Auditor's office of the Wisconsin, Iowa & Nebraska, now the Chicago Great Western. Then he was made Superintendent of Telegraph of the Chicago, St. Paul & Kansas City line of the C. G. W. He continued with that company until May, 1898, as Superintendent of the Kansas City Division from March, 1893; as assistant to the General Superintendent from September, 1893, and Superintendent of the St. Paul & Duluth divisions from September, 1894. He was made Train Dispatcher of the Northern Pacific at Livingston, Mont., in July, 1898. A month later he became Chief Clerk to the Vice-President and General Manager of the Butte, Anaconda & Pacific, and continued in that position until March, 1899, when he entered service with his present company, the Pacific Coast, as Superintendent.

ELECTIONS AND APPOINTMENTS.

Ann Arbor.—G. R. Burt, Treasurer, will, on Jan. 1, next, also assume the duties of Purchasing Agent, succeeding J. A. Miller, resigned.

Arizona & Utah.—N. W. Tarr has been appointed Superintendent, succeeding H. M. McCartney.

Black Diamond Traction.—The officers of this company, referred to in the Construction column, are: President, Samuel B. Dow, Knoxville, Tenn.; Vice-President and General Manager, Albert E. Boone, Zanesville, Ohio; Treasurer, Peter Kern, Knoxville; Secretary, John Bane, Knoxville.

Canadian Pacific.—A. C. Shaw has been appointed Acting General Agent of the Passenger Department, succeeding J. F. Lee, resigned.

Central of Georgia.—Henry M. Steele has been appointed Chief Engineer, with headquarters at Savannah, Ga., effective Nov. 20.

Chicago & Alton.—At a meeting of the stockholders, held Dec. 4, J. Forgan and D. R. Francis were elected Directors, succeeding Rudolph Brand and Bertram M. Winston.

Cleveland, Cincinnati, Chicago & St. Louis.—F. J. Zerbee has been appointed Master Mechanic of the Cleveland Indianapolis Division, with headquarters at Bellefontaine, Ohio, succeeding E. E. Hudson, resigned. G. Wirt has been appointed Master Mechanic of the Michigan Division, at Wabash, Ind., succeeding Mr. Zerbee. P. J. Hickey becomes Master Mechanic of the St. Louis Division, at Mattoon, Ill., succeeding W. P. Orland, assigned to other duties, effective Dec. 1.

Denver & Rio Grande.—W. D. Lee, heretofore Acting Second and Third Division Superintendent, has been appointed Assistant Superintendent of the Second and Third Divisions.

Elizabeth, Plainfield & Central Jersey.—The officers of this company, referred to in the Railroad News column, are: President, David Young; Vice-President and General Manager of the North Jersey Street Ry. Co.; Vice-President, Thomas A. Nevins, Orange; Treasurer, Thomas N. McCarter, Newark; Secretary, Col. Edwin W. Hine, Orange.

Grand Trunk Western (Successor to Chicago & Grand Trunk).—On Nov. 22, the following officers were elected: President, Chas. M. Hays; Treasurer, Jas. H. Muir, and Secretary, Chas. Percy. All others in the service of the Receivers of the C. & G. T., will continue to act in their respective positions for this company until further notice. (See R. R. News column.)

Great Northern.—Frank Bell has been appointed Assistant Superintendent of the Montana Division, with headquarters at Havre, Mont., succeeding J. C. Nolan, transferred, effective Nov. 17.

Illinois Central.—F. Fairman, heretofore Auditor of Freight Receipts, has become Auditor, at Chicago, Ill.

Kansas City, Fort Scott & Memphis.—J. H. Sullivan, Superintendent of the Eastern Division at Memphis, Tenn., has resigned.

National Tehuantepec.—W. J. Cox has been appointed Superintendent of Traffic and Transportation.

New York Central & Hudson River.—George W. Vaughan has been appointed Division Engineer of the Pennsylvania Division, with headquarters at Jersey Shore Junction, Pa., succeeding Schuyler Hazard, transferred. Charles E. Buchholz has been appointed Acting Division Engineer of the River Division, at Weehawken, N. J., succeeding F. S. Curtis, resigned. James E. Johnson succeeds Mr. Vaughan as Supervisor of Bridges and Buildings, at Grand Central Station. The following Supervisors of Track have been appointed: John H. Silvermail, Sub-Division No. 6, at Fonda, N. Y., succeeding Mr. Buchholz; Michael Gurnett, Sub-Division No. 1, at White Plains, succeeding O. W. Eggleston, resigned; M. E. Egan, Sub-Division No. 16, at Oswego, succeeding Mr. Gurnett; J. Moran, Sub-Division No. 15, succeeding Mr. Shea; Andrew M. Clough, Sub-Division No. 23, at Batavia, succeeding P. B. Wittmer, resigned; Thomas Shea, Sub-Division No. 14, North Tonawanda, succeeding A. S. Weston, resigned; Perlee J. Compton, Sub-Division No. 21, at Kingston, succeeding Mr. Clough.

Omaha, Kansas City & Eastern.—E. H. Shaulfer has been appointed Freight Traffic Manager, with headquarters at Kansas City, Mo. The position of Assistant General Manager, held by Mr. Shaulfer, is abolished. Chas. E. Gibbs, General Freight Agent, has resigned, effective Dec. 1.

Pennsylvania Company.—W. B. Wood, Assistant Engineer Maintenance of Way at Wellsville, Ohio, on the Northwest System, having been granted leave of absence until Dec. 31, M. C. Bland, Assistant Engineer Maintenance of Way of the Richmond Division on the Southwest System, has been assigned to similar service on the Cleveland & Pittsburgh Division of the N. W. System. Geo. LeBoutellier is acting as Assistant Engineer Maintenance of Way on the Richmond Division.

Southern.—J. Y. Hill has been appointed Supervisor of Bridges and Buildings, with headquarters at Tusculum, Ala.

Texas Midland.—F. M. Raikie, Assistant to the General Manager, having resigned, that office is abolished; and all departments reporting to same, will, on and after Jan. 1, 1901, report direct to E. H. R. Green, President and General Manager.

Toledo & Western.—The officers of this company, referred to in the Construction column, are: President,

Luther Allen, Cleveland, Ohio; Vice-President, J. R. Seagrave; Secretary and General Manager, F. E. Seagrave, Toledo, Ohio; Electrical Engineer, F. B. Perkins, Toledo.

Union Pacific.—Chas. Ware, Assistant Superintendent, has been transferred from Omaha, Neb., to North Platte, Neb. C. B. Keyes succeeds Mr. Ware at Omaha, Neb.

Wabash.—F. M. Meriweather has been appointed General Roadmaster, with headquarters at Decatur, Ill., succeeding Edw. Shelah.

RAILROAD CONSTRUCTION.

New Incorporations, Surveys, Etc.

ALABAMA ROADS.—The Bay City and Sullivan timber companies of Mobile are surveying a line of standard gage road three miles long in Monroe County.

ATCHISON, TOPEKA & SANTA FE.—The California State Board of Harbor Commissioners has made a new lease to the San Francisco & San Joaquin Valley of 35 acres of land and water in San Francisco, at China Basin, for new wharves, docks, terminals, etc.

ATLANTIC COAST LINE.—As to work near Emporia, Va., an officer writes that a tangent three miles long is to be built eliminating five curves. This is practically a single cut one mile long, containing 110,000 cu. yds.; also two fills of about the same volume. The company has built temporary trestles at the fills and the contract for the excavation of the cut has been let. The work will be done by a steam shovel. One and one-fourth miles of track is laid. Two small bridges will be built. (Aug. 17, p. 559.)

ATLANTIC, VALDOSTA & WESTERN.—A charter has been granted for a belt line along the river front in Jacksonville, Fla., connecting this company's terminals and the Florida Central & Peninsular line of the Seaboard Air Line. (Official.)

BIRMINGHAM & VICKSBURG.—The Governor of Mississippi has authorized the incorporation of this company to build from Birmingham, Ala., west to Vicksburg, Miss. A. Krauss, of Chicago, John D. Woher and Daniel Levy, of Canton, Miss., are incorporators.

BLACK DIAMOND TRACTION.—This company has been incorporated in North Carolina to build about 160 miles of electric lines radiating from Zanesville, Ohio. The proposed lines are from Zanesville west about 20 miles to Somerset, with Columbus as the ultimate point; from Zanesville northwest about 50 miles via Irvile, Nashport, Fallsburg and Martinsburg to Mt. Vernon; from Zanesville east 27 miles via Norwich and New Concord to Cambridge; from Zanesville southeast 63 miles via Duncan Falls, Meigsville, Beverly and Watertown, to Belpre, opposite Parkersburg, W. Va. The general offices are at Knoxville, Tenn. The officers are given under Elections and Appointments.

BUTTE, ANACONDA & PACIFIC.—Building is in progress on an extension of the East Anaconda, Mont., yards to new reduction works located one-half mile south and 330 ft. in elevation from the yards. This extension will require 10½ miles of main track and 5¼ miles of sidings. The contract was let June 6 to Toole & Twoly, of Anaconda, contractors. The grading is about 80 per cent. completed. There are 150 men and 40 teams at work. The maximum grade is 1.1 per cent.; maximum curve 12 deg. (Official.)

CALVERT, WACO & BRAZOS VALLEY.—The company has filed an amended charter in Texas providing for a line from Spring, on the International & Great Northern, 22.3 miles north of Houston, to run to Fort Worth, 283 miles. The road is completed from Marlin to Bryan, 68 miles, and it is proposed to extend it south from Bryan to Spring. The line will have trackage rights into Houston and Galveston from Spring over the International & Great Northern. See also International & Great Northern under Railroad News. (Construction Supplement, July 27, 1900.)

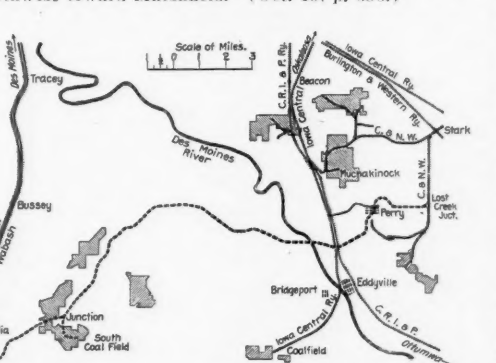
CANADIAN PACIFIC.—Application is made to the Canadian Parliament for power to build from a point at or near Stonewall or Toulon, Man., northwest to a point on the east shore of Lake Manitoba between Marsh Point and the north boundary of Township 25.

The Great Northwest Central, the British Columbia Southern and the Columbia & Kootenay lines of this company are petitioning the Parliament of Canada for an extension of time for completing their lines.

CHERRY HILL, ELKTON & CHESAPEAKE.—This company is reported making arrangements to sell \$150,000 of 5 per cent. bonds to provide for building its electric line from Elkton, Md., to Chesapeake City, work on which was begun in September. John Kennedy, of Philadelphia, is President, and Ambrose Higgins, Secretary. (Sept. 7, p. 602.)

CHICAGO & NORTHWESTERN.—Right of way is reported being secured for the branch from Antigo, Wis., west 22 miles to Merrill. Surveys have been made for two routes. (Nov. 9, p. 748.)

Grading is reported begun near Wild Rose, Wis., on the Princeton & Northwestern extension from Princeton northwest toward Marshfield. (Oct. 19, p. 696.)



Chicago & Northwestern Extension Through Coal Lands in Iowa.

The company has completed its Southern Iowa extension from Lost Creek Junction, Iowa, near Stark, southwest 20 miles to coal mines in Monroe County, near Lo-

vilia, on the Wabash. John S. Wolf & Co., of Ottumwa, Iowa, had the contract. The maximum grade is 1 per cent. (Construction Supplement, July 27, 1900.)

An officer writes that there is no basis for the report that the company will extend its line from Weller, Iowa, through Corydon to Kansas City, as reported. (Nov. 23, p. 784.)

CHILKOOT PASS.—Plans are reported in shape for immediate building of this line from Skaguay, Alaska, via the Chilkoot Pass to Eagle City. It will require a tunnel 3,500 ft. long under the Pass, and the grade will be about 1 per cent., it is said, on the first 13 miles out from Skaguay, then 4 per cent. for eight miles. The road is to pass by Log Cabin and Lake Lindeman, thence via Teslin to a low divide between the heads of Lake Atlin and Teslin, and thence to a steamboat landing below Thirty-mile, and from that point into Dawson and Eagle City. Surveyors are at work on the north side of the mountain under John Diero. Another party at the Dawson end is under John Dell. A. B. Miller, of Seattle, Wash., is one of the trustees. (Aug. 31, p. 588.)

CINCINNATI, GEORGETOWN & PORTSMOUTH.—Bonds to the par value of \$500,000 are reported sold for the extension from Georgetown, Ohio, southeast about 23 miles to West Union. (Oct. 12, p. 680.)

COLORADO & CANADIAN VALLEY.—This company was incorporated in Oklahoma, Nov. 28, with a capital stock of \$10,000,000, to build a railroad from Cripple Creek, Colo., through Oklahoma to a point on the Red River in the Chickasaw Nation, Ind. T., near the mouth of the Washita River. The headquarters are El Reno, Okla. T. The incorporators are: W. S. Sherman, O. A. Shutte, J. E. Bonebrake, A. F. Masterman, A. T. Newell, W. I. Goff and J. J. O'Rourke, of El Reno; Alva Adams, J. L. Carile, W. L. Graham, Charles Hinkle, of Pueblo, and Frank Hendry, Boston, Mass.

CORVALLIS & EASTERN.—Building is to be begun at once, according to report, on the proposed extension from Idanha, Ore., east about 250 miles to Nyssa, on the Oregon Shore Line. Work is to be begun, according to report, at the Nyssa end. (March 11, 1898, p. 188.)

COWEN & GREENBRIER.—Final surveys are in progress for this proposed line from Cowen, W. Va., on the Baltimore & Ohio, east 25 miles via Upper Glade, Bolair and the Gauley River to the Greenbrier Valley. It is expected that grading will be begun about Dec. 1. James H. McCreery is President, and A. C. Hayes, Superintendent and Chief Engineer, both of Pittsburgh. (Nov. 9, p. 748.)

DELAWARE, LACKAWANNA & WESTERN.—Surveys are reported in progress for a cut-off in Western New Jersey, from Waterloo west about 15 miles to Delaware Gap, cutting out Washington from the main line.

DETROIT, ROCHESTER, ROMEO & LAKE ORION.—Building is begun on extensions of this line. The road now runs from Royal Oak, Mich., a few miles northwest of Detroit, north 27 miles via Rochester to Romeo, with a branch from Rochester northwest 15 miles to Oxford. The proposed extensions are from Oxford northwest 30 miles via Ortonville and Atlas to Flint, and from Romeo north 20 miles via Almont to Inlay City. John Winter, of 29 State street, Detroit, Mich., is President and General Manager.

DOTHAN, HARTFORD & FLORIDA.—Surveys are reported in progress on this proposed line from Dothan, Ala., on the Alabama Midland, to run south about 106 miles via Hartford to St. Joseph, Fla. J. P. Pelham, of Dothan, Ala., is President. (Construction Supplement, July 27, 1900.)

DULUTH & NEW ORLEANS.—Arrangements are reported completed for resuming work on this line from Des Moines, Iowa, to Osage, and contracts are let to Elzy & Gilman, of Marshalltown, Iowa. The company has been reorganized with J. A. Fitzpatrick as President and James Bilton as Vice-President. (Construction Supplement, July 27, 1900.)

EAST LOUISIANA.—Surveys are reported completed for the Louisiana Eastern extension from Covington, La., north 28 miles to Franklinton. It is stated that building is to be begun at once. (Construction Supplement, July 27, 1900.)

GRAND RAPIDS, GRAND HAVEN & MUSKOGEE.—The articles of association of this company have been amended, increasing the capital stock from \$100,000 to \$1,200,000, and increasing the number of directors from four to five. The company was recently incorporated in Michigan to build an electric line connecting the three cities named in the title. James D. Hawks, of Detroit, is President, and W. W. Churchill, Chief Engineer. (Aug. 17, p. 560.)

GULF & BRAZOS VALLEY.—Building is to be begun at once, according to report, between Mineral Wells and Jacksboro, Tex., 28 miles, on the extension of this line. It was completed from Peck City to Mineral Wells, 10½ miles, some time ago. E. B. Carver, of Mineral Wells, is President and General Manager; H. M. Berry, Chief Engineer. (Construction Supplement, July 27, 1900.)

HILLO.—This company has completed its line from Hilo, Hawaii Island, south nine miles to the Olaa sugar plantation. An extension is to be finished about Jan. 1 of 15 miles more to the plantation of the Puna Sugar Co. A branch line is proposed from the Olaa sugar plantation toward the volcano of Kilauwa, 20 miles. This has been surveyed and will be built next year. The road is standard gage and laid with 60-lb. rails. The capital stock is \$500,000, of which 10 per cent. is paid in. The company has also issued \$50,000 first mortgage 6 per cent. 10-20 year bonds. B. F. Dillingham is President, and C. H. Kluegel, Chief Engineer, both of Honolulu. (Construction Supplement, July 27, 1900.)

HUDSON BAY & NORTHWEST.—Christie & Greene, of Ottawa, are applying to the Canadian Parliament for an act to change the name of the company and to permit it to build from Hudson Bay to a point on the northern shores of Lake Superior; also from Hudson Bay to the Ottawa River. Powers are asked to amalgamate with other companies and to extend the time for completing the road.

ILLINOIS CENTRAL.—The resolution granting right of way through Fourth avenue, at Cedar Rapids, Iowa, was simply the confirmation of an old ordinance which the company had for years but has never utilized. The present line will be extended in the south part of the city to provide local freight facilities.

The company has no intention of extending its stub line, as reported, from Manchester, Iowa, to Cedar Rapids. (Nov. 23, p. 784.)

Bids are reported received for the section between Baton Rouge, La., and Hammond, 44 miles, on the Louisiana, Mississippi & Alabama extension from Baton Rouge east 65 miles to Galveston. (Oct. 5, p. 662.)

INDIANAPOLIS & LEBANON TRACTION.—Marion County, Ind., Commissioners have granted a franchise for this electric line along the Lafayette Pike from Indianapolis northwest about 30 miles to Lebanon. The company is to pay the county annually \$25 per mile for the use of the pike. The intention is to extend the road ultimately to Lafayette, about 40 miles additional. The petitioners are: James M. Manker, A. A. McKain, Ernest Dawson, William Helfenberger, J. S. Holliday and A. M. Gloss-Breener.

INDIANA ROADS.—An electric road is projected from Sellersburg south about 14 miles via Jeffersonville to New Albany. Surveys are completed. Louis Schneck of Seymour, Judge J. H. Stotsenburg of New Albany, Geo. H. Holzboog of Jeffersonville, and Leonard Kranz of Sellersburg, are interested.

JACKSON, COLUMBUS & NORTHEASTERN.—Surveys are reported completed for this line from Jackson, Miss., northeast about 100 miles to Columbus, and building is to be begun at once. Newman Cayce, of Columbus, Miss., is President. (Oct. 26, p. 712.)

JAMESTOWN & CHAUTAUQUA.—The New York State Board of Railroad Commissioners, on Nov. 28, granted the application for the Jamestown, Chautauqua & Lake Erie extension from Mayville, N. Y., northwest 10.1 miles to Westfield. (J., C. & L. E., Sept. 28, p. 644.)

LINDSAY, BOBCAYGEON & PONTYPOOL.—Location is reported completed under W. T. Jennings and James McDougal, of Toronto, Ont., for this proposed line from Burketon, Ont., on the C. P. R., via Lindsay, 40 miles. (Oct. 26, p. 712.)

LOUISIANA & NORTHWEST.—Building is to be begun soon, according to report, on the extension from Bienville, La., southeast 10 miles toward Alexandria. (Construction Supplement, July 27, 1900.)

LOUISVILLE & NASHVILLE.—Surveys are reported in progress for a new line near Clear Creek, Ala., around Penning Mountain.

LOUISVILLE & PORT ROYAL.—This company has been incorporated in Tennessee, with a capital stock of \$100,000, to build a railroad from Louisville, Ky., southwest to Port Royal, S. C. The incorporators are: Geo. R. Wright, John S. Bowden, D. C. Beatty, W. J. Gaudin, W. C. Smith, Joseph Upchurch and L. T. Smith.

MARIETTA, WILLIAMSTOWN & PARKERSBURG LIGHT & RAILROAD.—Surveys are to be made soon, according to report, for this line from Parkersburg, W. Va., north about 15 miles across the Ohio River to Marietta. Thos. F. Barrett, of Parkersburg, and M. P. Goodman, Cleveland, Ohio, are interested.

MISCELLANEOUS COMPANIES.—The Lorimer & Gallagher Co. was incorporated in Illinois, Nov. 28, with a capital stock of \$50,000, to build railroads and do general contracting. The incorporators are: William Lorimer, Joseph P. Gallagher and Charles Hamill.

The Surinam-American Co., of New York City, has been incorporated in New York, with a capital stock of \$100,000, to build railroads and do other construction in Dutch Guiana, S. A. The incorporators are: Orlando W. Joslyn, Howard Hasbrouck of New York City, Robert H. Foerderer of Philadelphia, and Edward Foerderer of Frankford, Pa.

MONTANA.—Building is to be begun in the spring, according to report, on the extension to White Sulphur Springs, Mont. (Construction Supplement, July 27, 1900.)

MONTGOMERY.—Thomas McNally, of Pittsburgh, is reported to have the contract for eliminating a curve on this line just out of Montour Junction, Pa. The National Steel Co. is reported to have the contract for 400 tons of 70-lb. rails for new work and renewals on the line.

NACOCHEE.—This company has been organized to build a line from Clarksville on the Southern, to Nacoochee, Ga., 15 miles. W. S. Erwin, of Clarksville, is interested.

NEW YORK CENTRAL & HUDSON RIVER.—The new line from Clearfield, Pa., east 31 miles to Karthaus is to be known as the West Branch. The Karthaus branch of the Pennsylvania R. R. from Karthaus to Keating, 22 miles, is to be rebuilt, making a total from Clearfield to Keating of 53 miles. Surveys are in progress with four parties from Clearfield to Karthaus. Contracts for grading, track laying, etc., will be let within the next 60 days. The work is difficult, including several crossings of the Susquehanna River and four or five tunnels. (Nov. 23, p. 784.) The maximum grades will be 10 ft. per mile; the maximum curves 6 deg. (Official.)

The company is extending its yards above the Grand Central Station, New York City, by taking in property between Forty-seventh and Forty-eighth streets on Madison avenue, utilized by the American Express Co. for shipping offices.

PHILIPPINE ROADS.—Captain Chas. W. Meade, of the Thirty-sixth Infantry, U. S. A., has reported on a preliminary survey for the railroad from Dagupan, on the Island of Luzon, terminus of the Manila & Dagupan R. R. It is to run northeast to Baguio in the neighboring province of Benguet. A route has been mapped out with a maximum grade of 3 per cent., and maximum curves of 12 deg. (Oct. 26, p. 712.)

PITTSBURGH, BESSEMER & LAKE ERIE.—An officer writes that the only work the company is doing on the Hilliard branch is to build a cheap spur about one mile from Allandale, Pa., to a proposed coal tipple. The work is very light and is being done with scrapers. Nothing is known as to an extension, as reported, from Boyers' Station north to Murrinsville. (Nov. 23, p. 784.)

RAILWAYS COMPANY GENERAL.—Superintendent Rand, of the Michigan Traction Co., is reported as announcing that the Railways Company General, of Philadelphia, is to build an electric road from Detroit, Mich., west to St. Joseph to connect with a belt line to Chicago. The Michigan Traction Company's line from Battle Creek to Kalamazoo, 28 miles, opened May 29 last, and controlled by the Railways Company General is to be used as part of the line.

RIO GRANDE WESTERN.—Building is under way on the extension of the Bingham branch in Utah from Bingham to the mines of the Bingham Copper & Gold Mining Co., three miles up the canyon. For the first two miles beyond Bingham the present grade of the company's 3-ft. gage tramway will be used as far as practicable. Beyond that point the work will be new. The grading will be largely solid rock excavation, difficult by reason of proximity of numerous buildings. It is to be standard gage and operated with Shay engine. The maximum grade is 7.4 per cent.; the maximum curves 40 deg. (Nov. 9, p. 748.) The curvature in excess of 20 deg. is equated at 0.04 ft. per degree. (Official.)

ST. LOUIS & SAN FRANCISCO.—An officer writes that there is nothing to be said at this time concerning the

proposed extension of the Chadwick branch from Chadwick, Mo., south to Harrison, Ark. (Nov. 16, p. 764.)

ST. LOUIS, CAPE GIRARDEAU & SOUTHERN.—This company was incorporated in Missouri, Nov. 22, with a capital stock of \$450,000, to build a line from Cape Girardeau northwest about 40 miles to Perryville, connecting the Houck's Missouri & Arkansas with the Chester, Perryville & Ste. Genevieve. The company is controlled by Houck's M. & A., which has practically completed an extension from Commerce north to Cape Girardeau. The incorporators are: Louis B. Houck, Charles T. Lewis, Robert G. Ranney, Giboney Houck and Albert O. Phelan, all of Cape Girardeau.

SARDIS & DELTA.—Application has been filed for a charter for this company in Mississippi to build from Sardis southwest 20 miles to a tract of timber land owned by Cassius M. Carrier, of Buffalo, N. Y. J. C. Kyle, Panola, is an incorporator. Building is reported begun.

SEABOARD AIR LINE.—Building is reported begun on the Charlotte, Monroe & Columbia line from McBee, S. C., north 39 miles to Monroe, N. C., on another branch. (Nov. 30, p. 802.)

SOUTHERN PACIFIC.—Surveys are reported in progress for a connecting line between the Springfield branch and the main line from Henderson, Ore., across the Willamette River, about two miles. It will require a steel bridge.

SUFFOLK & CAROLINA.—An officer confirms the statement that the company is extending its line from Ryland, N. C., to Edenton. It follows a survey made in the summer of 1897. The principal intervening station is Center Hill. No contracts have been let, and the grading, track laying and bridging is being done by the company. Work was begun the first week in December with from 25 to 30 men. The curves are few and easy. (Nov. 30, p. 802.)

TOLEDO & WESTERN.—An officer writes that the company is building the first 10 miles of this electric line to be in operation Jan. 1. It is proposed to go forward early in the spring with from 70 to 80 miles additional. The line is projected from Toledo west via Sylvania, Metamora, Lyons, Morenci and Fayette to Pioneer, and also to Adrian, Mich. On the first 10 miles the maximum grade is 1½ per cent., and the maximum curve 10 deg. The company is using 60-lb rail. The officers are given under Elections and Appointments. (Nov. 23, p. 784.)

VICKSBURG & MERIDIAN.—This company has been incorporated in Mississippi to build a railroad along practically the line proposed by the Jackson, Columbus & Northeastern, referred to above.

WABASH.—President O. D. Ashley is reported as saying that the building of the new line from Toledo, Ohio, west about 58 miles to Montpelier is to be begun next spring. It will complete a continuous line from Toledo to Chicago. (Construction Supplement, July 27, 1900.)

WATER VALLEY, CLARKSDALE & MISSISSIPPI VALLEY.—Capt. H. P. Farrar has completed the surveys, according to report, for this proposed line from Water Valley, Miss., on the Illinois Central, to run northwest about 70 miles via Riverside, to a point on the Mississippi opposite Helena, Ark. (Nov. 16, p. 764.)

WAYNESBORO, PASCAGOULA & GULF.—Arrangements are reported completed for beginning work on this line from Waynesboro, Miss., on the Mobile & Ohio, to run south 107 miles via Henderson and Moss Point to Scranton. J. R. S. Pitts, of Waynesboro, is President. (Construction Supplement, July 27, 1900.)

WEATHERFORD, MINERAL WELLS & NORTHWESTERN.—The company is reported to have made arrangements for extending its line from Mineral Wells northwest about 40 miles to Graham, and surveys are reported in progress. The road now runs from Weatherford, Tex., west 23 miles to Mineral Wells.

WESTERN MARYLAND.—An officer writes that the company is not contemplating double tracking of the Potomac Valley at this time, as reported, although it is making extensive additions to the siding accommodations at all points, including the Cherry Run and Williamsport, Md., terminals. (Nov. 23, p. 784.)

Surveys are reported in progress for an extension from Cherry Run, W. Va., northwest about 35 miles to Everett, Bedford County, Pa., on the Pennsylvania R. R.

WEST VIRGINIA ROADS.—The Bessemer Limestone Co., of Martinsburg, is reported about to build a line from the Baltimore & Ohio main line to new quarry fields.

The Elk Lumber Co., which has built a narrow gage line of about three miles from Blue Creek, on the Charleston, Clendennin & Sutton, is building four miles additional into their timber lands.

GENERAL RAILROAD NEWS.

BALTIMORE & OHIO.—John D. Crimmins, of New York, began a suit in equity, Dec. 1, in the United States Circuit Court, New York, to restrain the company from paying 2 per cent. dividend on the common stock, declared in August last and payable March 1, 1901, from the net earnings for the year ended June 30, 1900. An injunction is also asked restraining the company from paying any future dividends on the common stock until a dividend of 4 per cent. has been declared and paid on the preferred stock for each year.

BOSTON & MAINE.—The stockholders of the Connecticut River at a special meeting voted to issue 500 shares of new stock and \$335,000 bonds for refunding and for improvements.

Stockholders of the Boston & Lowell have voted to issue the \$319,000 20-year 3½ per cent. bonds. (Nov. 30, p. 802.)

CHICAGO & ALTON.—The Directors, on Dec. 4, voted a 2 per cent. semi-annual dividend on the preferred stock, payable out of the earnings of the period ended Dec. 31. This is the first dividend declared under the new company. The capital stock is \$40,000,000, equally divided between 4 per cent. non-cumulative preferred shares and common shares. (Nov. 23, p. 784.)

CHICAGO, BURLINGTON & QUINCY.—Sealed proposals will be received by the New England Trust Co., trustee, until noon, Dec. 15, for enough Burlington & Missouri River in Nebraska non-exempt 6 per cent. bonds, due July 1, 1918, to absorb \$149,635.82. (June 22, p. 434.)

CHICAGO, INDIANAPOLIS & LOUISVILLE.—Judge Woods, in the U. S. Court at Indianapolis, Nov. 20, overruled the exceptions of the Louisville Trust Co. to the report of the Special Master and upheld the validity of the foreclosure sale of the old Louisville, New Albany & Chicago. (July 20, p. 502.)

CINCINNATI, JACKSON & MACKINAW.—A. H. Muller &

Son will sell at auction, Dec. 19, for the reorganization committee the following securities:

| | |
|---|-------------|
| Cincinnati Northern preferred stock..... | \$4,190,000 |
| Cincinnati Northern common stock..... | 2,610,000 |
| Jackson & Cincinnati Ry. common stock..... | 150,000 |
| Detroit, Toledo & Milwaukee R. R. Co. stock.. | 1,500,000 |
| Jackson & Cincinnati Ry. Co., first mortgage | |
| 5 per cent. bonds, March, 1896, coupons on... | 300,000 |
| Detroit, Toledo & Milwaukee R. R. Co., first | |
| mortgage 5 per cent. 50-year gold bonds of | |
| 1897..... | 1,500,000 |

These securities were received by the committee under the plan of 1896 and were pledged to secure loans of \$1,200,000. The modified plan of March, 1900, never became operative, and the certificates of the old C. J. & M. foreclosed, are still outstanding. (March 30, p. 210.)

DELAWARE, LACKAWANNA & WESTERN.—The Morris & Essex R. R. Co. has filed in the office of the Clerk of Union County, N. J., a mortgage for \$35,000,000, in favor of the Farmers' Loan & Trust Co. It is to secure 3½ per cent. bonds due in December, 2000. This is the refunding mortgage voted by the stockholders some time ago, to retire existing bonds at maturity and to provide funds for improvements and additions. (March 16, p. 178.)

DENISON & SHERMAN.—Application has been made to the Texas Railroad Commission for the issuing of \$300,000 bonds and \$100,000 stock for building this company's proposed electric line between Denison and Sherman, Tex. (Oct. 26, p. 712.)

DETROIT & LIMA NORTHERN.—F. E. Dewey, agent for the purchasers of the Columbus Northwestern, took possession of that line Dec. 1. The property has been reorganized as the Columbus, Lima & Northwestern. (Oct. 26, p. 712; C., L. & N., Nov. 30, p. 802.)

EEL RIVER.—The Supreme Court of Indiana has confirmed the appointment of Richard Ruddle, of Kokomo, Ind., as receiver of this line. He will sell the road under a court decree. (Nov. 30, p. 802.)

ELIZABETH, PLAINFIELD & CENTRAL JERSEY.—This company has been organized, with a capital stock of \$3,000,000 and an authorized issue of \$2,500,000 bonds, to consolidate the 60 miles of trolley lines in Elizabeth, Rahway and Plainfield, N. J., outside the North Jersey Street Ry. system in Elizabeth. These companies are the Westfield & Elizabeth Street, the Elizabeth City Horse, the Elizabeth Street, the Plainfield Street and the Rahway street railroads. The officers are given under Elections and Appointments.

GEORGE'S CREEK & CUMBERLAND.—W. DeL. Walbridge and John E. Knapp, Commissioners at No. 1 Broadway, New York, will receive offers for the sale of the first mortgage bonds for the sinking fund up to noon, Dec. 7.

GREAT EASTERN.—This company, which has proposed to build a line in North Carolina, has made a mortgage to secure \$300,000 first mortgage 5 per cent. 30-year gold bonds, dated Jan. 1, 1901. J. W. Lynch, of Kingston, N. C., is President. (Railroad Construction, Aug. 31, p. 588.)

INTERNATIONAL & GREAT NORTHERN.—Official notice is given by publication of the intention to apply to the Texas Legislature at its coming regular session, for a law authorizing the company to buy and operate the Calvert, Waco & Brazos Valley.

LOCKPORT & OLCOTT.—E. O. McNair & Co., Buffalo, N. Y., are offering the remaining \$362,000 of the company's \$700,000 outstanding first mortgage 5 per cent. gold bonds, guaranteed principal and interest by the International Traction Co. This is an electric road projected from Lockport, N. Y., north about 20 miles to Olcott. (Construction Supplement, July 27, 1900.)

LOUISVILLE, EVANSVILLE & ST. LOUIS CONSOLIDATED.—The foreclosure sale of Nov. 22 was confirmed two days later by Judge Allen, at Springfield, Ill.

A special meeting of the stockholders of the Southern Ry. has been called for the latter part of December to vote on the ratification of the recent purchase of this property for that company. (Nov. 30, p. 802.)

MANHATTAN ELEVATED.—The New York State Court of Appeals, on Nov. 27, gave a decision fixing the value of the property assessable for city purposes in New York City at \$9,492,307, instead of \$17,860,712, the amount assessed in 1894, when the litigation began. The company's balance of Sept. 30 last includes among the liabilities taxes in litigation \$2,085,559. There is some doubt as to how much of this is payable for previous years under the decision.

MISSOURI PACIFIC.—The company has issued \$2,983,560 additional capital stock to buy the Kansas City Northwestern, which extends from Kansas City to Virginia, Neb., 162 miles, with 12 miles of branches. A controlling interest has been held for some years in the property by persons friendly to the M. P.

NORTHERN PACIFIC.—J. P. Morgan & Co., New York, are offering \$9,215,000 of 4 per cent. gold mortgage bonds of the St. Paul-Duluth division. These are the bonds arranged for on the old St. Paul & Duluth line prior to the absorption. (S. P. & D., June 29, p. 458.)

PENNSYLVANIA.—The company opened its stock transfer office at 128 Broadway, New York City, Dec. 1, and the stock was listed on the New York Stock Exchange on that date. (Oct. 19, p. 696.)

PEORIA & PEKIN TERMINAL.—E. H. Gay & Co. are offering \$600,000 5 per cent. first mortgage sinking fund bonds of this company. (May 18, p. 330.)

PITTSBURGH, BESSEMER & LAKE ERIE.—The Carnegie Steel Co., which owns more than half the capital stock of this company, is reported to have made an offer to lease the property, guaranteeing 3 per cent. annually on the par value. The arrangement will not be made unless satisfactory to a considerable number of the minority holders.

SHERMAN, SHREVEPORT & SOUTHERN.—H. W. Poor & Co., New York, are offering \$500,000 first mortgage 5s of 1893 at 97½. They are a part of the \$589,000 issued on the extension from Jefferson, Tex., to Waskom, and on the link from Greenville, Tex., to Shreveport, La.

THIRD AVENUE (NEW YORK).—Kuhn, Loeb & Co., New York, will receive subscriptions, on Dec. 7, for \$10,000,000 new first consolidated mortgage 100-year 4 per cent. gold bonds at 104½, and accrued interest. These are a part of the total authorized issue of \$50,000,000 (June 1, p. 364.)

WHITE PASS & YUKON.—The company has issued a prospectus in London for the sale of £750,000 of 5 per cent. consolidated first mortgage debentures to convert into one security all its existing securities and to provide cash to pay for the section of railroad from Bennett to White Horse on the Lewis River.